PB90-114802

Superfund Record of Decision (EPA Region 5): Outboard Marine, IL (Amendment), March 1989

(U.S.) Environmental Protection Agency, Washington, DC

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U.S. Department of Commerce
National Technical Information Service
NTIS

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R05-89/096
March 1989

PB90-114802

EPA

# Superfund Record of Decision:

# Outboard Marine (Amendment), IL

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U.S. DEPARTMENT OF COMMERCE
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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The Outboard Marine site is on the west shore of Lake Michigan in Waukegan, Illinois. A marine products manufacturing plant operated at the site for approximately 20 years until production ended in the early 1970s. From 1961 to 1972 hydraulic fluid containing PCBs was used at the plant in the die cast works. This fluid was later discharged to Slip 3 of the harbor, a parking lot north of the plant, and three areas known as the North Ditch, Oval Lagoon, and Crescent Ditch. There is an estimated 700,000 pounds of PCBs onsite and approximately 300,000 pounds in Waukegan Harbor. In 1984 EPA began engineering design work for the selected remedial actions presented in a 1984 Record of Decision (ROD) to clean up contaminated soil and sediment at the site. During 1985, however, all actions were suspended due to litigation between Outboard Marine Corporation (OMC) and EPA regarding EPA access to OMC's property. Section 122 of SARA specifically addressed access problems and upon its effective date, negotiations with OMC resumed for implementation of the remedy. After negotiations between EPA and OMC were completed, a consent decree was signed in 1986 by OMC. Under the consent decree most portions of the remedial action described in the 1984 ROD remain unchanged. An onsite treatment step was added, however, to meet the SARA preference for treatment requirement. The primary contaminants of concern affecting the soil and sediment are PCBs.
(See Attached Sheet)

17. Document Analysis a. Descriptors

Record of Decision - Outboard Marine, IL
Amendment
Contaminated Media: soil, sediment
Key Contaminants: PCBs

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

| 18. Availability Statement | 19. Security Class (This Report)<br>None | 21. No. of Pages<br>63 |
|---|---|---|
| | 20. Security Class (This Page)<br>None | 22. Price |

(See ANSI-Z39.18) *See Instructions on Reverse*

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

EPA/ROD/R05-89/096
Outboard Marine, IL
Amendment

16. Abstract (Continued)

The selected remedial action for this site includes construction of a cutoff wall and slurry wall to isolate Slip 3 and form a containment cell; construction of a new slip to replace Slip 3, and relocate Larsen Marine; removal and treatment of sediment in Slip 3 which exceed 500 mg/kg PCB; dredging of upper harbor sediment above 50 mg/kg and placement of contaminated sediment in the new Slip 3 containment cell; excavation and onsite treatment of soil and sediment exceeding 10,000 mg/kg PCBs from the Crescent Ditch/Oval Lagoon Area; construction of a west containment cell for treatment residues and lower concentration PCB-contaminated soil; construction of an east containment cell around the parking lot area; construction of a temporary, onsite water treatment facility for dredged water; construction of a permanent water treatment facility; onsite treatment of containment cell water followed by discharge to either a POTW or an onsite location; capping of all containment cells; and ground water monitoring. The estimated capital cost for this remedial action is $19,000,000; O&M costs were not provided.

## Declaration for the Record of Decision Amendment

### Site Name and Location

Outboard Marine Corporation/Waukegan Harbor
Waukegan, Illinois

### Statement of Basis and Purpose

This decision document represents the selected remedial action for the Outboard Marine Corporation/Waukegan Harbor site developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

This decision is based on the contents of the administrative record for the Outboard Marine Corporation/Waukegan Harbor site. The attached index identifies the items which comprise the administrative record upon which the decision to amend the 1984 Record of Decision, and the selection of the modified remedial action is based.

The State of Illinois and U. S. EPA, each and independently concur and adopt the selected remedy.

### Description of the Remedy

The 1989 proposed remedy addresses the same areas for remediation as were addressed in the 1984 ROD. The major components of this remedial action include:

- A new slip will be constructed on the east side of the Upper Harbor to replace Slip 3 and Larsen Marine will be relocated from its present location to the new slip.

- Slip 3 will be permanently isolated from the Upper Harbor by the construction of a double-walled, braced, and soil-bentonite backfilled sheet pile cutoff wall. After the slip is isolated an impermeable clay slurry wall with a minimum thickness of three feet will be constructed. This wall will be keyed into the underlying clay till, and a permanent containment cell will be built in the slip.

- The most highly contaminated sediments from Slip 3 with PCB concentrations in excess of 500 ppm will be removed

from the slip and treated. The Upper Harbor will be dredged and the dredged materials placed in the newly constructed Slip 3 Containment Cell.

- Two additional containment cells will be constructed using the same design used for the construction of the Slip 3 Containment Cell. The East Containment Cell will encompass part of the parking lot area and land to the east of the lot and the West Containment Cell will encompass the Crescent Ditch and Oval Lagoon area. Before constructing the West Containment Cell, contaminated soils in these areas in excess of 10,000 ppm will be excavated and removed for treatment.

- Soils and sediments excavated from Slip 3, the North Ditch, Crescent Ditch and Oval Lagoon areas designated for treatment will be subjected to an on-site treatment process. After startup, the selected treatment technology must remove at least 97 percent of the PCBs by mass from the contaminated materials without endangering public health. The treated sediments will be placed in the West Containment Cell. Extracted PCBs will be disposed of off-site in accordance with all applicable Federal and State laws.

- A short-term water treatment facility will be constructed for treating water generated during the remedial construction activities. Dredge water will be treated by sand filtration. Other water generated during the course of remedial activity will be treated utilizing the sand filtration step to remove sediments from the water, followed by carbon adsorption treatment.

- A smaller permanent water treatment facility will be constructed to treat water extracted from the containment cells. Treated water will be discharged to the North Shore Sanitary District or to an on-site location approved by EPA.

- When all materials have been deposited in the cells, they will be closed and capped with a high density polyethylene (HDPE) liner and soil cover. The cells will include extraction well systems which are designed to prevent the migration of PCBs from the cells.

- Monitoring wells will be constructed around the cell perimeters and monitored periodically to verify ground water quality.

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**Declaration**

The selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate to this remedial action and is cost-effective.

This remedy satisfies the statutory preference for remedies that employ treatment that reduce toxicity, mobility or volume as a principal element and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

Because this remedy will result in hazardous substances remaining on-site above health based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

3/31/89

Date

Franklin M. Covington

for Valdas V. Adamkus
Regional Administrator
Region V

3/30/89
Date

Bernard P. Killian
Bernard P. Killian, Director
Illinois Environmental
Protection Agency

# Record of Decision Amendment Summary
## Outboard Marine Corporation/Waukegan Harbor

## I. SITE NAME, LOCATION AND DESCRIPTION

The Outboard Marine Corporation (OMC) site is located near the intersection of Grand Avenue and Sheridan Road on the west shore of Lake Michigan in Waukegan, Illinois, about 37 miles north of Chicago and 10 miles south of the Wisconsin state border (Figure 1).

Waukegan Harbor is an irregularly shaped harbor about 37 acres in area. The two areas of concern within the harbor are Slip No. 3 and the Upper Harbor. PCB concentrations in Slip No. 3 are greater than 500 parts per million (ppm). In the Upper Harbor, PCB concentrations are between 50 and 500 ppm. Water depths in the harbor generally vary from 14 to 25 feet with some shallow depths in Slip No. 3. The harbor sediments consist of 1 to 7 feet of very soft organic silt (muck) overlying typically 4 feet of medium dense, fine to coarse sand. The sand is generally uncontaminated. A very stiff silt (glacial till) that typically ranges from 50 to more than 100 feet thick underlies the sand. The entire harbor is bordered by 20- to 25-ft-long steel sheet piling, except at the Waukegan Port District boat launching areas and at the retaining wall near the harbor mouth. The sheet piles generally extend into the sand layer above the glacial till.

A small tributary of Lake Michigan drains surface runoff from about 0.11 square miles of the OMC and North Shore Sanitary District property. The system also drains surface runoff from areas west of OMC property and the railroad tracks. This drainage system consists of the 600 by 20 foot Crescent Ditch, the 240 by 10 to 40 foot Oval Lagoon, and the 2,000 by 10 to 20 foot North Ditch. The U.S. Department of the Interior measured the mean daily discharge of this tributary between March and September 1979 as 1.8 cubic feet per second (cfs), with a maximum discharge of 5.3 cfs. They calculated the 5-year storm event to be 23 cfs. PCB contamination in the tributary ranges from 50 to over 10,000 ppm. The areas of hot-spot contamination (over 10,000 ppm) are confined to the Crescent Ditch and Oval Lagoon.

The Parking Lot area is located north of OMC's Plant No. 2 and is about 9 acres in area. PCB concentrations in this area are between 50 to 5,000 ppm. There are three entrances to the Parking Lot area: two fenced entrances in the northwest corner of OMC's property and one fenced entrance southeast of OMC's new die-cast complex at the intersection of OMC's private road and Seahorse Drive.

Figure 1. Location of study area

The generalized subsurface conditions on the OMC property typically consists of 30 feet of compact, very fine to fine sand overlying a stiff to very stiff silt (glacial till). The thickness of the glacial till typically ranges from 50 to more than 100 feet.

## II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

OMC manufactures marine products for recreational use. Polychlorinated biphenyls (PCBs) were used in its die cast machines at this plant from at least 1961 until the early 1970's. In 1976, high levels of PCBs were discovered in the soils and harbor sediments on-site.

From approximately 1961 to 1972, OMC purchased a hydraulic fluid used in the die-casting works that contained PCBs. Some of these fluids escaped through floor drains. The floor drains discharged to an oil interceptor system which discharged to the North Ditch. Some of the PCBs escaped from a portion of the oil interceptor, diversion and pump system and were released to the Waukegan Harbor. The harbor area discharge was located in the western end of Slip 3, and the north property discharge was to the Crescent Ditch. The discharge pipe to the harbor was sealed in 1976.

As a result of these discharges, large quantities of PCBs are in Slip 3 of Waukegan Harbor and on OMC property in the North Ditch/Oval Lagoon/Crescent Ditch area and in the parking lot. It is estimated that there are over 700,000 pounds of PCBs on OMC property and approximately 300,000 pounds of PCBs in Waukegan Harbor. The range of PCB concentrations are set forth in Figure 2.

In 1984, after conducting numerous studies of PCB contamination at the site and completing a Feasibility Study (FS) which analyzed various alternative remedies to clean up the contamination, the EPA, in accordance with CERCLA, selected a recommended remedial alternative to be implemented, using monies from the Hazardous Substances Trust Fund. This remedial selection is set forth in the 1984 Record of Decision (ROD) authorizing expenditures of $21 million to clean up the site. That same year the engineering design work for the selected remedial action was initiated. However, in late 1985, design work on the project was suspended due to litigation between OMC and EPA regarding EPA access to OMC's property, since such access was essential to continue the design process.

While this litigation was pending before the courts, SARA was enacted. The SARA amendments call for the preference for "permanent remedies which reduce the mobility, toxicity, or volume of hazardous substances." Although RODs signed prior to October 1986 are not required to meet these new requirements, EPA

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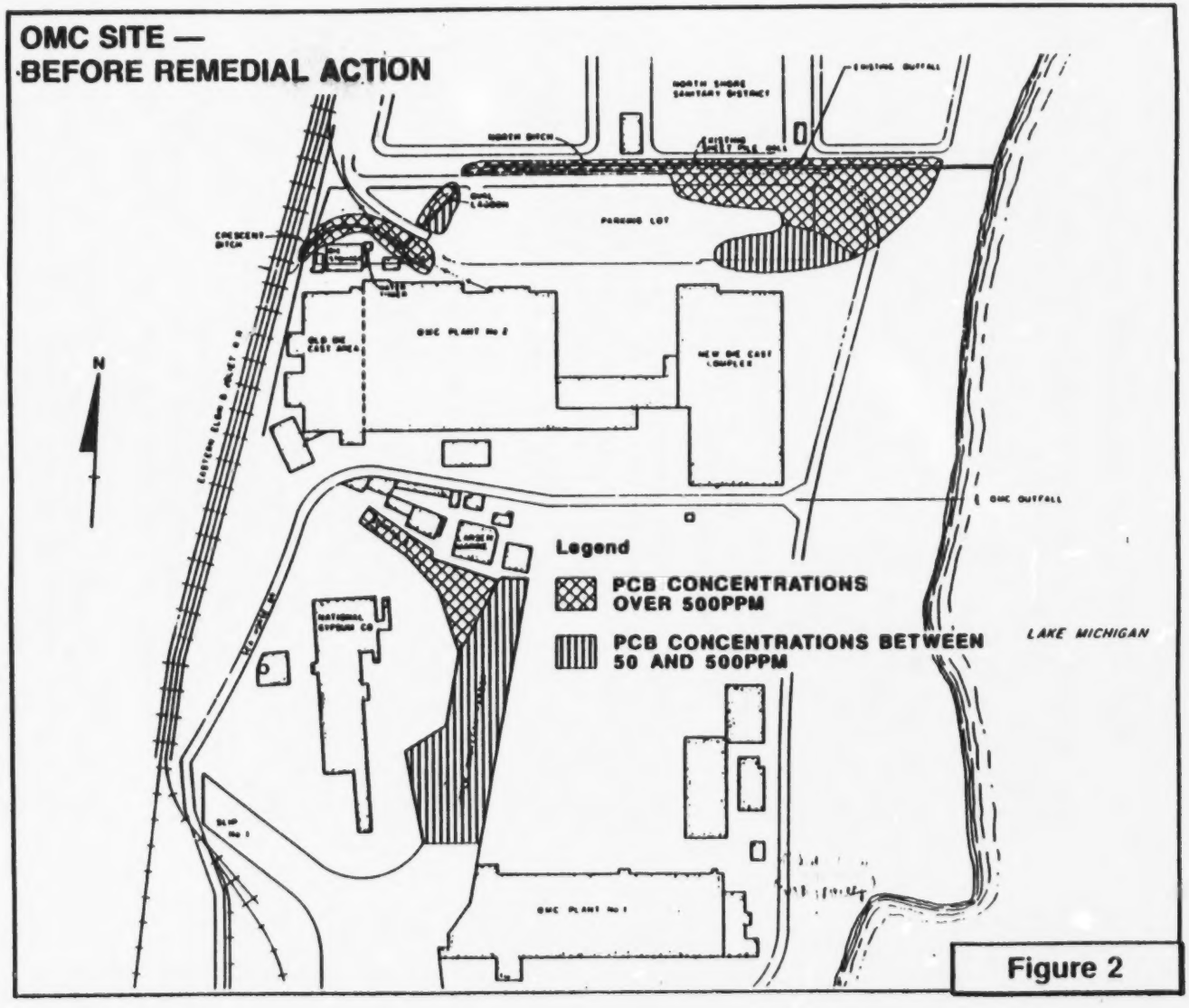



2.2

reevaluated the 1984 ROD to develop a remedy consistent with SARA.

About the time EPA began reviewing the remedy set forth in the 1984 ROD, EPA and OMC agreed to end the ongoing access litigation. Shortly thereafter, OMC submitted a proposal to clean up the site. The negotiations between OMC, EPA, and Illinois Environmental Protection Agency (IEPA) since late 1986 have resulted in a Consent Decree. Under this decree, OMC will finance a Trust to implement the cleanup and will ensure performance of the requirements of the Consent Decree. The Consent Decree and its appendices outline the areas to be remediated, the methods to be used, and the financial responsibility, both immediate and long-term, for the cleanup. A copy of the Consent Decree and its appendices are available at the OMC site information repositories.

## III. COMMUNITY RELATIONS HISTORY

The Explanation of Significant Differences was released at the beginning of the public comment period on October 12, 1988. The public comment period extended 30 days until November 14. Approximately 50 people attended a public meeting held October 18. An extension to the public comment period was granted until December 5.

The community sentiment supports "putting to rest" the contamination problems, the stigma of which has plagued the commercial and recreational fishing industry in the area. They particularly support the construction of a new slip for Larsen Marine. Short term closure of Larsen Marine during the construction period was required in the 1984 ROD. Comments received in writing and at the public meeting are generally supportive of the 1989 modified remedy.

The Department of Justice (DOJ) published notice of the lodging of the Consent Decree in the Federal Register. Public comment period was open until December 5, concurrent with the Waukegan public comment period pursuant to Section 117 of SARA. Response to all comments can be found in the attached Responsiveness Summary.

## IV. DOCUMENTATION OF SIGNIFICANT CHANGES

This ROD amendment is limited in scope to those technical elements of the remedy which have changed and the SARA preferences which are manifest in the 1989 modified remedy (and the supporting Administrative Record). Many elements of the original 1984 ROD do not change. Therefore, the findings made in

the 1984 ROD remain the same except for the significant changes described in this ROD Amendment.
The major differences between the 1984 ROD and the 1989 Consent Decree are as follows:

- The 1989 decree provides for a new slip to be built to replace the old Slip 3 and relocates Larsen Marine to the new slip.

- The present remedy expands the definition of "hot spot" areas to include all material in Waukegan Harbor 500 ppm and above, thereby including a larger amount of material. (Note that the definition of "hot spot" in the oval lagoon and crescent ditch area remains at 10,000 ppm.)

- The containment cells are built in ground with protective slurry walls keyed into the clay till and utilize extraction wells to maintain an inward hydraulic gradient (a lower water level inside the cell than outside).

- The "hot spot" material is to be treated on-site in the manner previously discussed rather than transported off-site for disposal in a licensed PCB landfill. The on-site treatment eliminates the need for dewatering lagoons called for in the 1984 ROD.

The proposed remedy will greatly reduce existing risks to PCB exposure on OMC property and will improve the water quality of Waukegan Harbor. The 1989 remedy will result in at least an equivalent protection of public health and the environment as the 1984 ROD. The 1984 ROD determined that excavation and off-site disposal of hot spot areas was necessary to enhance the reliability of on-site containment. The proposed remedy expands the amount of material designated for removal and treatment by including all contaminated materials in excess of 500 ppm in the harbor rather than the 1984 level of those in excess of 10,000 ppm.

The hot spot material, rather than being transported off-site for disposal in a licensed landfill, will be treated so that, after startup, at least 97 percent of the PCBs will be extracted and destroyed. Treatment of the PCBs in this manner is consistent with the goal of SARA to permanently reduce the toxicity, mobility and volume of hazardous materials.

The soil extraction process will generate concentrated PCB contaminated oil. This oil will be taken off-site and destroyed in compliance with all applicable State and Federal regulations. The amount taken off-site will be significantly less than the

off-site removal of contaminated sediment envisioned in the 1984 ROD due to on-site treatment.

Placing lower concentration materials (between 50-500 ppm) from the Upper Harbor in the Slip 3 Containment Cell will provide an equivalent level of protection as the above-ground vault specified in the 1984 ROD. Containment in Slip 3 reduces the materials handling risks and eliminates the use of on-site dewatering lagoons. This containment alternative was previously recommended by EPA but was withdrawn because of the economic impact to the affected business community. The 1989 proposed remedy allows the advantages of this method while providing for the economic well-being of the businesses affected. This modification is more protective of the environment since it results in greater than 96% PCB removal by mass from the open harbor. In the 1984 ROD with Slip 3 remaining open to the harbor as envisioned, PCB removal was estimated at 92%.

The containment cells actively prevent migration of PCBs through slurry walls by maintaining an inward hydraulic gradient through a system of extraction wells. The volume of sediments being placed into the cells is greater than in the 1984 ROD; however the sediments will have been treated on-site and 97 percent of the PCBs extracted, thus reducing the mass of PCBs in the cells. In addition, the cells will be capped with a synthetic liner which will prohibit infiltration from the surface. Samples will be taken at regular intervals from monitoring wells outside the walls of the cells to ensure that PCBs are not migrating into the surrounding soils and groundwater, thus safeguarding the public health and environment.

Key portions of the remedy which remain the same from 1984 to 1989 are summarized here:

- The definition of "hot spot" area in the Oval Lagoon and Crescent Ditch remains at 10,000 ppm.
- Exposed residual soil concentrations remaining after the remedial action should not exceed 50 ppm in any area.

It should be noted that Kriging analysis was done after the 1984 ROD to refine the aerial extent and volume estimates corresponding to these clean-up and hot spot definitions. The Kriging analysis provides a statistical "best-fit" line delineating these areas by elevation relative to mean sea level.

## SUMMARY

### OUTBOARD MARINE CORPORATION
### DIFFERENCES BETWEEN 1984 ROD AND 1989 PROPOSED REMEDY

| 1984 ROD | 1989 PROPOSED REMEDY |
|---|---|
| Slip 3 to be dredged closed. | Slip 3 to be dredged and closed. Larsen Marine re-located to new slip to be constructed |
| Waukegan Harbor sediments to be contained be stored in parking lot cell | Waukegan Harbor sediments contained in Slip 3 cell |
| "Hot spots" (defined as >10,000 ppm) fixed and transported off-site | "Hot spots" (defined as >500 ppm in Slip 3 and >10,000 on OMC property) permanently treated on-site |
| Required transportation of sediments off-site to hazardous waste landfill | On-site containment requires no off-site transportation of sediment |
| Large on-site dewatering lagoons to be constructed | Use of Slip 3 cell for dewatering with on-site water treatment |
| Containment cells had clay cap and no extraction wells | Containment cells have synthetic and soil caps and extraction wells |

## V. DESCRIPTION OF MODIFIED REMEDY

There are no PCB extraction or soil treatment technologies specified in this ROD. Instead, this ROD specifies the volume of soils and sediments to be removed from the environment, and once removed, the performance based treatment level.

The attached work plan describes the soil sediment removal program. These soil/sediment quantities represent approximately 90% PCB removal from the environment in the North Ditch area and greater than 96% removal in the entire harbor area. The on-site treatment must achieve a performance standard of at least 97%

extraction efficiency of the PCBs by mass present in the excavated materials. In the course of negotiations, OMC evaluated two extraction systems in detail. The B.E.S.T. process is a chemical extraction process; the Taciuk process is a low temperature thermal extraction process. Either system selected or any other system which meets EPA approval is required to meet the performance standards. Figure 3 shows the remedial action which is described as follows:

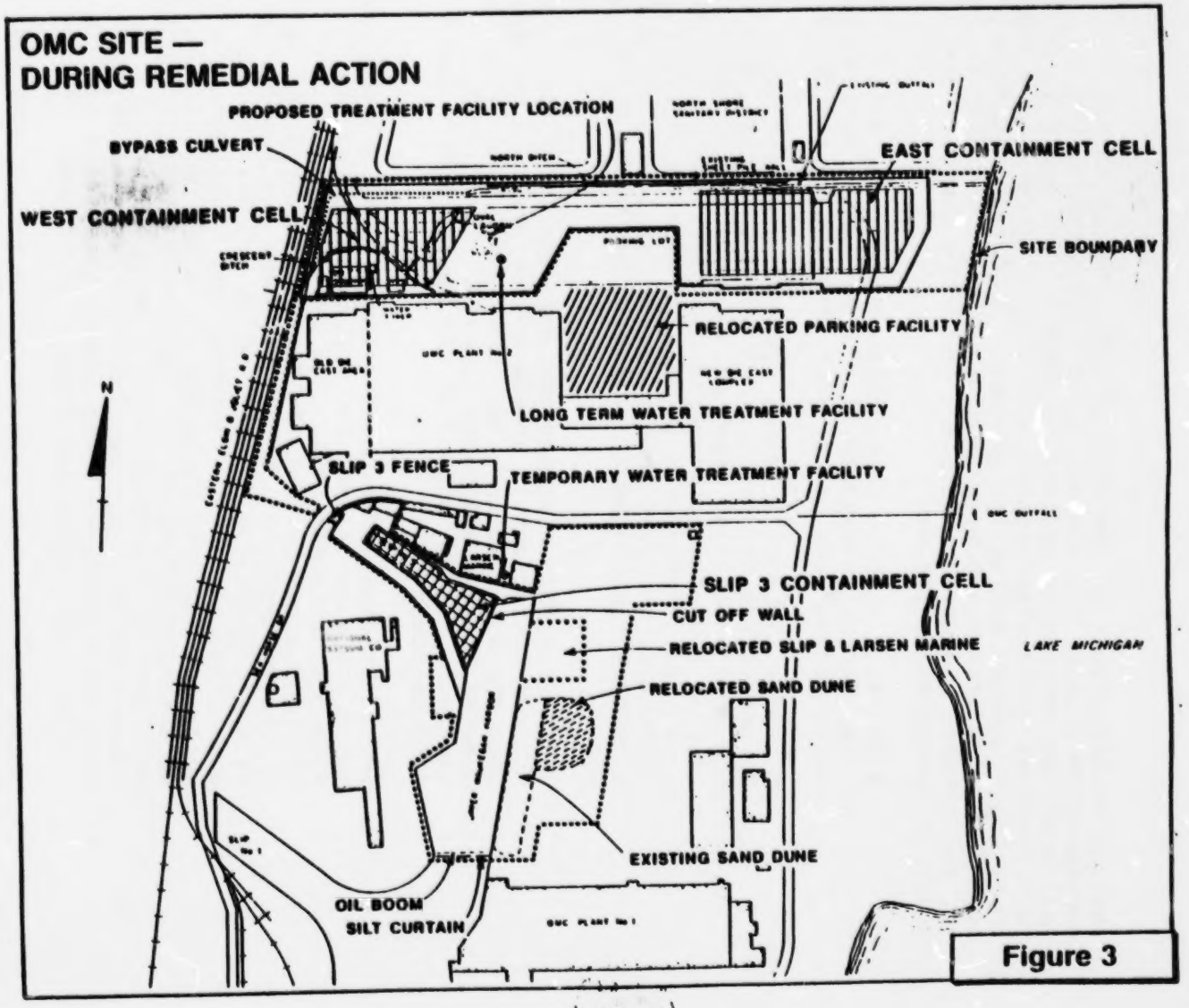
- A new slip will be constructed on the east side of the Upper Harbor to replace Slip 3 and Larsen Marine will be relocated from its present location to the new slip.

- Slip 3 will be permanently isolated from the Upper Harbor by the construction of a double-walled, braced, and soil backfilled sheet pile cutoff wall. After the slip is isolated, an impermeable clay slurry wall with a minimum thickness of three feet will be constructed which will be keyed into the underlying clay till, and a permanent containment cell will be built in the slip.

- The most highly contaminated sediments from Slip 3 with PCB concentrations in excess of 500 ppm will be removed from the slip and treated. The Upper Harbor will be dredged and all sediments removed. These dredged sediments will be placed in the newly constructed Slip 3 containment cell.

- Two additional containment cells will be constructed using the same design used for the construction of the Slip 3 Containment Cell. The East Containment Cell will encompass part of the parking lot area and land to the east of the lot, and the West Containment Cell will encompass the Crescent Ditch and Oval Lagoon area. Before constructing the West Containment Cell, soils contaminated in excess of 10,000 ppm will be excavated and removed for treatment. The East Containment Cell will contain soils from the parking lot. These soils will not receive any treatment because they are already at lower levels (generally less than 500 ppm, with estimated average of 52 ppm).

- Soils and sediments excavated from Slip 3, and the North Ditch, Crescent Ditch and Oval Lagoon areas designated for treatment will be subjected to an on-site thermal or chemical extraction, or other type of treatment technology. After startup, the selected treatment technology must remove at least 97 percent of the PCBs by mass from the contaminated materials without endangering public health. The treated


OMC SITE —
DURING REMEDIAL ACTION
PROPOSED TREATMENT FACILITY LOCATION
BYPASS CULVERT
WEST CONTAINMENT CELL
EAST CONTAINMENT CELL
SITE BOUNDARY
RELOCATED PARKING FACILITY
LONG TERM WATER TREATMENT FACILITY
N
SLIP 3 FENCE
TEMPORARY WATER TREATMENT FACILITY
SLIP 3 CONTAINMENT CELL
CUT OFF WALL
RELOCATED SLIP & LARSEN MARINE
LAKE MICHIGAN
RELOCATED SAND DUNE
EXISTING SAND DUNE
OIL BOOM
SILT CURTAIN
Figure 3

7.a

sediments will be placed in the West Containment Cell. Extracted PCBs will be disposed of off-site in accordance with all applicable Federal and State laws. The average PCB concentration in the West containment cell will be 90 ppm.

- A short-term water treatment facility will be constructed for treating water generated during the remedial construction activities. Dredge water will be treated by sand filtration. Other water generated during the course of remedial activity will be treated utilizing the sand filtration step to remove sediments from the water, followed by carbon adsorption.

- A smaller permanent water treatment facility will be constructed to treat water extracted from the containment cells. Treated water will be discharged to the North Shore Sanitary District or to an on-site location approved by EPA.

- When all materials have been deposited in the cells they will be closed and capped with a high density polyethylene (HDPE) liner and soil cover. The cells will include extraction well systems which are designed to prevent the migration of PCBs from the cells.

EPA found it unnecessary to compare the B.E.S.T. and Taciuk process against one another in the context of this ROD amendment since either process selected must meet the performance standards. Instead, Table 1 serves as a summary comparison of the 1984 ROD and the 1989 ROD amendment relative to the Agency's nine (9) evaluation criteria. The completed remedial action is shown in figure 4.

## VI. STATUTORY DETERMINATIONS

U.S. EPA and IEPA believe the 1989 amended remedy satisfies the statutory requirements specified in Section 121 of SARA to protect human health and the environment; attain ARARs; utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

### Protection of Human Health and the Environment

The amended remedy will significantly reduce (to near zero) the migration of contaminants to Lake Michigan, thereby reducing risks to aquatic life and human receptors.

The extracted PCBs will be taken off-site for destruction, eliminating any potential for future exposure to high PCB concentrations.

Table 1: Comparison of Original and Amended RODs

| | Protection H H & E[1] | Compliance with ARARs | Long-term Effectiveness | Reduction in T, M, V[2] | Short-term Effectiveness | Implementability | Cost | State Acceptance | Community Acceptance |
|---|---|---|---|---|---|---|---|---|---|
| 1984 ROD | o Removes 92% of PCBs from harbor<br><br>o Most highly contaminated materials taken off-site<br><br>o Long-term management required | o Fund-balanced approach for TSCA<br><br>o Other ARARs in compliance | o Uncertain due to need for long-term management of wastes both on-site and off-site (landfill) | o Reduction in mobility only due to fixation before containment<br><br>o Reduction in volume because most highly contaminated materials taken off-site | o Likely air and water releases during dredging and excavation<br><br>o Engineering controls employed to minimize releases | o Moderate difficulty due to dredging and slurry wall construction<br><br>o $27 million at 20% RD completion | o $21 million at ROD | o Full acceptance | o Accept cleanup, do not accept economic impact during construction |
| 1989 ROD AMENDMENT | o Slip 3 removed from environment resulting in greater than 96% PCB removal from Harbor<br><br>o On-site containment re-designed for TSCA compliance based on protectiveness<br><br>o Long-term management assured through Trust fund | o No TSCA waiver needed<br><br>o Short-term NPDES variance required | o Off-site destruction is permanent<br><br>o On-site management of contained wastes required, but concentration in cells will be less than 500 ppm (ave. 50 - 90 ppm) | o Preference for treatment met; T,M,V[2] reduced | o Same as above but releases less because Slip 3 cutoff before dredging and dewatering occurs in Slip 3 | o Same as above | o $19 million at ROD | o Full acceptance | o Full acceptance |

[1] Human Health and the Environment
[2] Toxicity, Mobility and Volume

8.2

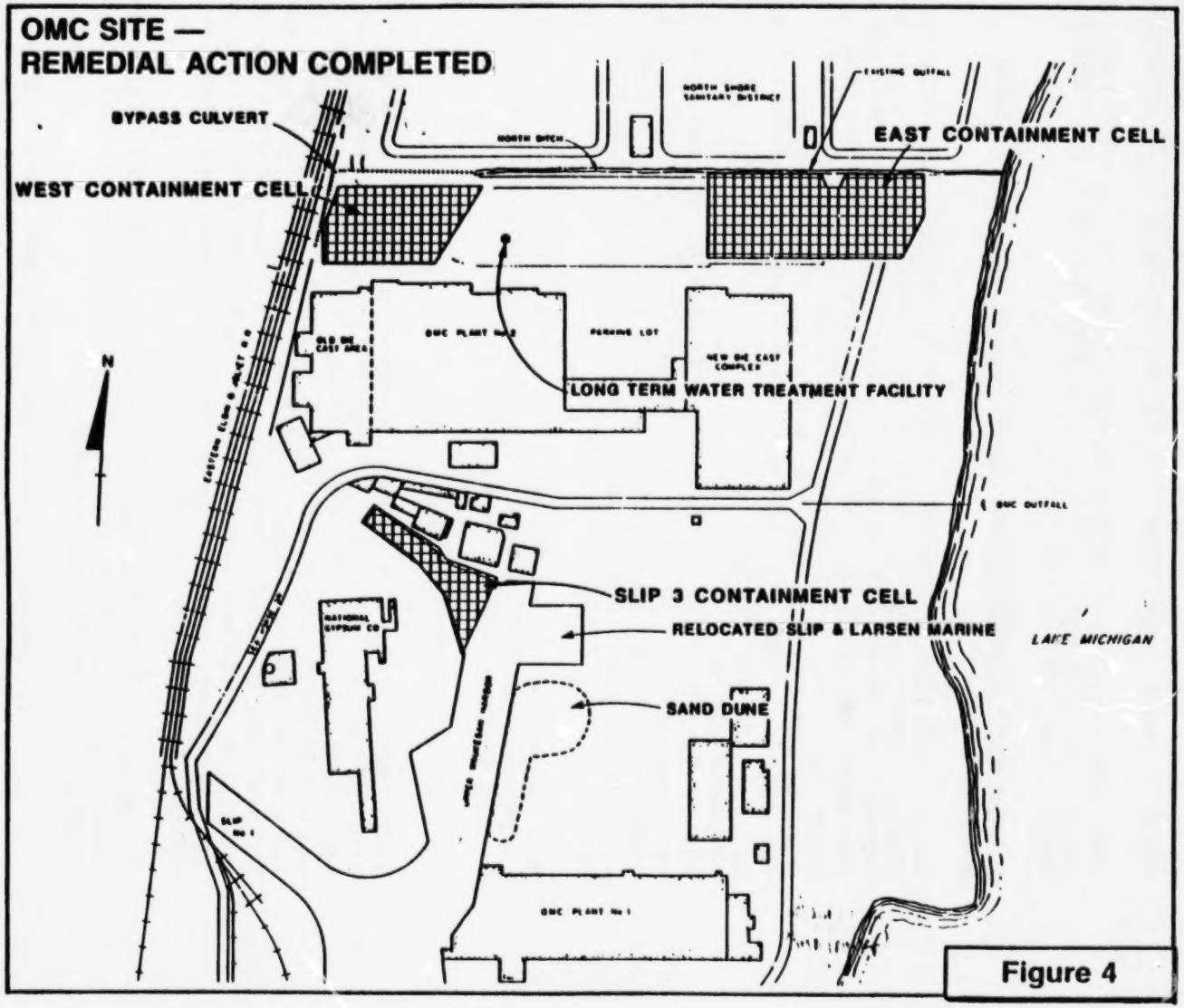

OMC SITE —
REMEDIAL ACTION COMPLETED
BYPASS CULVERT
WEST CONTAINMENT CELL
EAST CONTAINMENT CELL
NORTH DITCH
NORTH SHORE SANITARY DISTRICT
EXISTING OUTFALL
OMC PLANT NO 2
PARKING LOT
NEW OMC CAST COMPLEX
OLD OMC CAST AREA
LONG TERM WATER TREATMENT FACILITY
N
OMC OUTFALL
SLIP 3 CONTAINMENT CELL
RELOCATED SLIP 3 & LARSEN MARINE
LAKE MICHIGAN
NATIONAL GYPSUM CO
SAND DUNE
SLIP NO 1
OMC PLANT NO 1

Figure 4

On-site containment cells will have significantly lower average PCB concentrations than the cells envisioned in the 1984 ROD. These Toxic Substances Control Act (TSCA) compliant cells have been designed with strict engineering standards and will be managed by the OMC trustee with oversight by U.S. EPA and IEPA. Every 5 years, the integrity of the cells will be assessed.

Some short-term air releases may occur during the dredging and excavation process. Engineering controls will be employed to reduce possible emissions.

**Attainment of Applicable, or Relevant and Appropriate Requirements**

Section 121(d) of SARA requires that remedial actions meet legally applicable or relevant and appropriate requirements (ARARs) of other environmental laws. These laws may include: the Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Clean Air Act (CAA), the Toxic Substances Control Act (TSCA), and any State law which has stricter requirements than the corresponding Federal law. A "legally applicable" requirement is one which would legally apply to the response action if that action were not taken pursuant to Section 104 or Section 106 of CERCLA. A "relevant and appropriate requirement" is one that, while not legally applicable to the remedial action, addresses problems or situations sufficiently similar to those encountered at the site that their use is well suited to the remedial action.

The following is a description of the ARARs for the different components of the remedy and an explanation of how this remedial action meets those requirements:

1. Containment Cells

TSCA regulations are generally considered applicable or relevant and appropriate when PCB concentrations are greater than 50 ppm and disposal occurred after February 17, 1978. Although PCBs were originally disposed at OMC prior to February 17, 1978, excavation and re-disposal of PCB material will occur on-site as part of the planned remedial action. Thus, TSCA regulations governing disposal are considered applicable for those portions of the remedy which involve on-site disposal of material contaminated above 50 ppm.

In general, TSCA disposal regulations at 40 CFR 761.60 require that non-liquid PCBs at concentrations greater than 50 ppm be disposed of in one of three ways:

i) incineration in a TSCA compliant incinerator
ii) disposal in a chemical waste landfill that meets TSCA

requirements

iii) treatment with a method that provides equivalent destruction as incineration.

In addition, in the case of dredged sediment contaminated at levels above 50 ppm, TSCA regulations at 761.60(a)(5)(iii) allow an additional option: an alternate disposal method approved by the Regional Administrator.

The primary requirements for the alternate disposal method for dredge materials are: (1) "... based on technical, environmental, and economic considerations, indicates that disposal in an incinerator or chemical waste landfill is not reasonable and appropriate ..." and (2) "... the alternate disposal method will provide adequate protection to health and the environment ..." It was determined that neither incineration nor construction of a new upland landfill were reasonable or appropriate. These assessments are documented in the Administrative Record. The alternate disposal method was recommended and approved because it was based on stringent engineering standards and long-term facility management which would assure the protection of public health, and could be implemented in a timely manner.

At the OMC site, dredged sediments above 500 ppm from Slip No. 3 and from the crescent ditch and oval lagoon over 10,000 ppm will be treated to remove at least 97 percent of PCB contamination. The residual sediments may contain levels above 50 ppm. The disposal method for these residual sediments, containment in Slip No. 3 and in the West Containment Cell, have been approved as an alternate disposal method pursuant to TSCA regulations at 40 CFR 761.60(a)(5)(iii). Therefore, disposal of the sediment residuals is fully compliant with TSCA regulations. The highly contaminated PCB extracts from the treatment process will be disposed off-site in accordance with TSCA and/or other applicable regulations.

The East Cell will contain soils from the parking lot area. These soils will not be excavated and treated. The containment cell will be designed in the same manner as the Slip No. 3 and the West Containment Cells. This East Cell is not subject to TSCA approval since it does not contain excavated sediments.

2. Water Treatment and Discharge

Discharges of treated wastewaters to the "waters of the United States" are regulated by the provisions of the Clean Water Act. Control of these discharges is normally through the issuance of a National Pollutant Discharge Elimination System (NPDES) permit which sets forth conditions and effluent limitations for each discharge point.

There are two discharge scenarios at OMC; the discharges that will occur due to the remedial action operations and those that are presently subject to an existing NPDES permit (IL0002267). Because of the effect of construction related activities on the characteristics of the present discharges, modification of the existing permit has been proposed. This modification is being handled in compliance with all permit conditions, including public comment opportunity.

However, due to the uncertainty in the time frame for issuance of an effective permit, interim effluent limitations are proposed within the framework of this ROD Amendment. These are as follows:

| Effluent | Concentration Limit | Monitoring Frequency |
|---|---|---|
| Outfalls 001, 006 and 008 | | |
| PCB's | 5 ppb daily maximum | Weekly |
| Outfalls 007, and 014 | | |
| PCB's | 5 ppb daily maximum<br>1 ppb 30 day average | Twice weekly |
| Outfalls 015 and 016 | | |
| PCB's | 5 ppb daily maximum | Each Precipitation Event*/ |
| TSS | 30 mg/l daily maximum | Each Precipitation Event*/ |

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*/ A Precipitation Event shall mean a 0.3 inch rainfall in a 24 hour period as monitored on or near the Site.

These interim effluent limitations are contingent upon approval of a Best Management Practices plan (BMP). The BMP plan will specify contingency actions which will be triggered when specified concentration limits are exceeded. Exceedances of the interim limits are subject to penalties under provisions of the Consent Decree. These interim limits are effective from commencement of construction of the new slip until formal permit modifications become effective or until completion of the construction schedule for In-Place Containment (IPC) cells, whichever occurs first.

Discharges resulting from construction related activities are considered "on-site" under the Superfund program and are exempt from the procedural requirements of NPDES (including the requirement to have a discharge permit from the State). However, substantive requirements of the Clean Water Act must be complied

with. Thus, for this site, technology based effluent limits have been established for each discharge depending on the characteristics of the waste water and volumes to be treated. Based on EPA's Best Professional Judgement, the specified effluent limitations and accompanying requirements can be considered equivalent to those that can be achieved through the application of Best Available Technology Economically Achievable.

The CWA also requires monitoring of the discharge to assure that limits are being met (40 CFR Part 122.44(1)).

There are five (5) categories of water produced during remedial action.

Category 1: Upper Harbor Dredge Water

Category 2: Slip 3 Dewatering

Category 3: North Property Construction Water

Category 4: Soil Treatment Process Water

Category 5: Containment Cells Operation & Maintenance Water

Each category of water will meet specific discharge limits. In the event that limits may not be met, Best Management Practices (BMP) will be initiated to optimize treatment system efficiency and prevent violations of the specified limits. Table 2 shows how the effluent limits and BMP are used to ensure compliance with the CWA. Exceedance of any limits are subject to penalties under the Consent Decree.

Once construction is complete, water discharge in categories 1-4 will cease. Category 5 water will be reviewed in conjunction with the NPDES permit and will continue to be monitored.

3. Air Emissions

Non-promulgated advisories or guidance documents issued by the Federal or State government do not have the status of ARARs; however, where no applicable or relevant and appropriate requirements exist, or for some reason may not be sufficiently protective, non-promulgated advisories or guidance documents may be considered in determining the necessary level of protection of human health.

Currently, there are no promulgated organic chemical standards for air emissions. While TSCA regulates PCB emissions from incinerators, the innovative soil processing envisioned at this site do not have technology specific emission standards.

Table 2: Compliance Strategy for Remedial Action Discharge

| | Treatment technology | Est. duration (flow) | Effluent limit | Likely discharge location | Monitor frequency | Action level trigger | Likely BMP actions |
|---|---|---|---|---|---|---|---|
| Category 1: Dredge Water | Sedimentation Coagulant, sand filtration | 3 months (1000 gpm) | 15 ppb | Upper Harbor | Daily | 5 ppb | Additional coagulant, carbon |
| Category 2: Slip 3 Dewatering | As above with carbon adsorption | 6-8 months (100 gpm) | 5 ppb | Upper Harbor | Daily | 1 ppb on 2 consecutive days from first carbon unit | Change carbon filter |
| Category 3: Construction Water | Sand, filter, carbon adsorption | Duration uncertain (100 gpm) | 5 ppb | Upper Harbor or North Ditch | Daily | As above | As above |
| Category 4: Soil Process Water | As above | Duration uncertain (5-10 gpm) | 5 ppb max. 1 ppb 30 day average | NSSD[1] or approved location | Soil processor - weekly; carbon system - daily | Not specified | Not specified |
| Category 5: Containment Cell Water | As above | Long-term (10 gpm) | 1 ppb 30 day average | As above | Weekly for 6 months, decreasing over time | 1 ppb on 3 consecutive dates | Change carbon filter |

1 North Shore Sanitary District

Therefore, protectiveness levels will need to be established during the design phase. These levels will be based on health advisories and an exposure scenario which is protective of workers and community, and/or State standards. The work plan specifies carbon adsorption technologies on the air emissions point sources. In theory, zero emissions of PCBs may be achieved. However, other contaminants of concern may require specific limits (e.g., particulates, $NO_x$). When on-site pilot testing is completed and operating conditions are known, emission standards and appropriate criteria will be developed.

Cost-Effectiveness

The 1989 proposed remedy is more protective and offers greater long term effectiveness than the 1984 selected remedy. The on-site extraction of PCBs with subsequent off-site destruction means that significantly less PCBs will be left on-site or in the environment. This 1989 proposed remedy is estimated to cost $19 million. The 1984 selected remedy was estimated at $21 million; at 30% design completion, the costs had escalated to $27 million. The 1989 proposed remedy is the most cost-effective solution.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable, and Preference for Treatment as a Principal Element

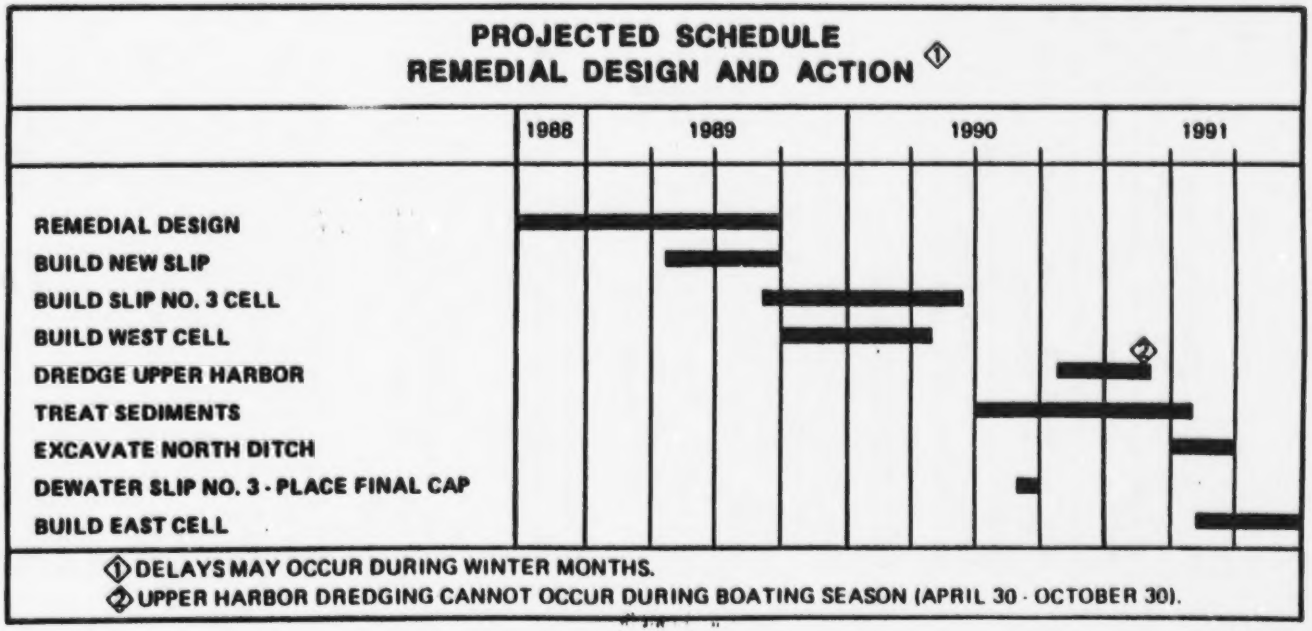
The soil extraction system proposed will remove 97% of the PCBs from the contaminated soil and sediment at the OMC site and result in better than 96% overall PCB removal from the open Harbor.

The performance based goal of 97% removal is driven by the SARA preference for treatment and the clearly delineated "hot spots" areas on the site. These areas are the same as the 1984 ROD. However, the excavation depth, removal and treatment for Slip 3 now corresponds to 500 ppm instead of 10,000 ppm, as specified in 1984. The performance standards will remain a key element of the 1989 proposed remedy despite the specific technology selected.

OMC evaluated two soil extraction systems; a chemical and a low temperature thermal extraction. Both were judged to be effective in reaching the performance goals. Both are considered alternative treatment systems.

## VII. Future Actions

The anticipated Remedial Design and Remedial Action schedule is attached.


PROJECTED SCHEDULE
REMEDIAL DESIGN AND ACTION ①
1988
1989
1990
1991
REMEDIAL DESIGN
BUILD NEW SLIP
BUILD SLIP NO. 3 CELL
BUILD WEST CELL
DREDGE UPPER HARBOR
TREAT SEDIMENTS
EXCAVATE NORTH DITCH
DEWATER SLIP NO. 3 - PLACE FINAL CAP
BUILD EAST CELL
① DELAYS MAY OCCUR DURING WINTER MONTHS.
② UPPER HARBOR DREDGING CANNOT OCCUR DURING BOATING SEASON (APRIL 30 - OCTOBER 30).

12.a

# OMC/Waukegan Harbor Responsiveness Summary
## Waukegan, Illinois

I. Responsiveness Summary Overview
II. Background on Community Involvement
III. Summary of Significant Comments Received During the Public Comment Period and EPA Responses
IV. Remaining Concerns

## I. Responsiveness Summary Overview

In accordance with CERCLA Section 117, a public comment period was held from October 12, to November 14, 1988, to allow interested parties to comment on the United States Environmental Protection Agency's (EPA's) Consent Decree and new proposed remedy as outlined in the Explanation of Significant Differences. A public meeting was held October 18, at which time EPA answered questions and accepted comments from the public. A few requests for comment period extension were received by EPA. These requests were also received by the United States Department of Justice (DOJ). DOJ published the notice of lodging in 53 Federal Register 41252, dated October 20, 1988 in accordance with 28 CFR 50.7. The DOJ comment period began October 20, and extended 30 days until November 29, 1988. As a result of the requests for time extension, both DOJ and EPA extended the public comment period until December 5, 1988. In total, this represents a 55 day comment period for EPA and a concurrent 46 day comment period for DOJ.

The purpose of this responsiveness summary is to document EPA's response to comments received at the public meeting and during the public comment periods held by EPA and DOJ. As this is only a summary document, the comments are paraphrased. The reader is referred to the information repositories for copies of the original written comments and transcript of the public meeting. The repositories are at the Waukegan Public Library, Waukegan City Hall and at the EPA office in Chicago, Illinois. All responses to comments summarized in this document are considered EPA's final decision for actions at the OMC/Waukegan Harbor site.

## II. Background on Community Involvement

The Explanation of Significant Differences was released at the beginning of the public comment period on October 12. The public comment period extended 30 days until November 14. A public meeting was held October 18. Comments received in writing and at the meeting are supportive of the modified remedy. An extension to the public comment period was granted until December 5.

The community sentiment supports "putting to rest" the contamination problems, the stigma of which has plagued the commercial and recreational fishing industry in the area. They particularly support the construction of a new slip for Larsen Marine. Temporary closure of Larsen Marine was required in the 1984 ROD.

## III. Summary of Significant Comments Received During the Public Comment Period and EPA Responses.

### A. Summary of Comments Received at the Public Meeting Held October 18, 1988.

1. Mr. Loren Baker, Director
Public Affairs OMC

OMC supports the remedy. They feel it is both cost-effective and environmentally sound. However, Mr. Baker emphasized that OMC believes PCBs have never presented an immediate hazard in the harbor.

2. Mr. Charles Isley, President
and Chief Executive Officer
Waukegan Lake County Chamber of Commerce

Mr. Isley congratulates the regulatory Agencies and OMC for developing a plan which is nondisruptive to the businesses and community as possible.

3. Mr. Jerry Larsen
Larsen Marine

Mr. Larsen congratulates EPA and OMC for coming up with a remedy that solves the problem without harm to other businesses, such as Larsen Marine.

4. Mr. Cameron Davis
Lake Michigan Federation

Mr. Davis supports the fact that action is finally going to begin on the PCB problem. He also states two concerns: First, the public comment period is not long enough given the size of the Consent Decree and work plan. Second, Mr. Davis does not believe the 50 ppm cleanup level is sufficiently protective of the ecological environment of the Great Lakes.

Mr. Davis also submitted written comments which incorporate the above statements. The Agency defers this response to the section of the Responsiveness Summary which addresses written comments.

5. Mr. Don Freeborn, Executive Director
Waukegan Port District

Mr. Freeborn supports the remedy.

6. Ms. D.J. Davis, Staff Assistant
Congressman John Porter

Ms. Davis read a statement on behalf of Congressman Porter. Mr. Porter urges the citizens of Waukegan to support the cleanup.

7. Mr. Lew Clark

Mr. Clark is a boater in the Waukegan area. He is pleased that the harbor will no longer be perceived as a toxic waste dump. He also supports a remedy that is not disruptive of his boating activities.

**Response**

The Agency notes that comments received generally reflect a sentiment which strongly favors this remedy and expedient implementation of it. EPA and OMC have taken into consideration the community concerns which were expressed in 1984 while negotiating and developing this 1989 remedy. EPA will continue to keep the community updated and informed as design and construction proceed. Fact sheets and press releases will be issued periodically.

**B. Summary of Written Comments and EPA Response**

There are three (3) groups of written comments received. These are as follows:

1. Written statements which were read at the Public Meeting
2. Statements which support the 1989 remedy without reservation
3. Comments concerning technical and legal issues

1. <u>Written statements as read at Public Meeting</u>

The following organizations submitted to EPA a copy of statements read at the public meeting held in Waukegan.

a. Mr. Jerry Larsen
Larsen Marine Service
b. Mr. Lauren M. Baker
Outboard Marine Corporation
c. Waukegan Park District
d. Mr. Charles Isely, III
Waukegan/Lake County Chamber of Commerce

**Response**

EPA acknowledges receipt of the above written statements. Response has been provided in the previous section.

2. Statements which support the 1989 remedy without reservation.

EPA has received twelve (12) written statements which show full support of the remedy, express appreciation for relocating Larsen Marine, and recognize that the temporary inconveniences associated with a closed upper harbor serve a greater environmental and economic good for the community as a whole.

a. Mr. Norman Drummond, AICP
   Norman Drummond and Assoc. City Planners
b. Mr. Andrew B. Davis
   Pioneer Press
c. Mr. Fred C. Borghardt
   Fred C. Borghardt AIA Architect, LTD.
d. Mr. Barrie T. Smith
   Smith Associates
e. Mr. Chas. S. Moyer, Jr.
   owner, Skipper "Why Not"
f. Mr. Michael V. Ostrowski, Ed. D.
g. Mr. William H. Billington, Jr.
h. Mr. Henry Rich
i. Mr. Richard Withrow
j. Mr. Robert Burchmore
   Harris Bank Winnetka
k. Mr. Peter Koukos
l. Ms. Marilyn Eccles,
   Madison Avenue Restaurant

**Response**

EPA appreciates the support of the community.

3. Comments concerning technical and/or legal issues.

a.) Ms. Marjorie Sennholt and Ms. Carolyn Sevcik, on behalf of the Lake County League of Women Voters submitted a request for public comment period extension and expressed concern about the adequacy of the "50 ppm line" in protection of health and environment.

**Response**

As a result of the few requests for public comment period extension, EPA did extend the comment period until December 5. EPA's response to the "50 ppm line" question is discussed on page 8.

b.) Dr. Mary Woodland submitted several questions on behalf of the Lake Michigan Inter-League Group, League of Women Voters.

**Summary**

Dr. Woodland questioned EPA's compliance with Annex 2 of the Great Lakes Water Quality Agreement and questioned several technical aspects of the project including continuity beneath the site of the clay till, the experience and longevity of plastic liners, and the design life of the project.

**Response**

The questions about Annex 2 compliance are discussed on page 6. The continuity beneath the site will be confirmed in pre-design field investigations which are scheduled for fall and winter (1988/1989). The high density polyethylene liners are state-of-the-art technology, and, while specific projections of liner longevity are not possible, measures are being taken to prolong the liner's useful life. For example, the containment cell cap is a layered system designed to protect the plastic liner from situations which would compromise its integrity such as freeze/thaw effects. Soils placed on top of the liner will also provide protection.

Further, OMC is obligated to maintain the integrity of the containment cells.

c.) Mr. Colin K. Thacker submitted comments on behalf of the Lake County Health Department.

**Summary**

Mr. Thacker feels the ground waters beneath the site should be tested for PCBs and actions taken if warranted. He also feels the Waukegan Harbor drinking water system should be monitored and that all monitoring programs and results be forwarded to his office for review.

**Response**

The containment cells are designed, in part, to encompass the existing ground water contamination. The ground water data indicate significant contamination only in the source areas (which will become the containment cells). After remedial action, at least 4 monitoring wells per cell will be installed, and other wells as determined necessary during the design phase. Should EPA find that actual conditions are different than anticipated, EPA can seek additional remedial actions pursuant to Section VI and XVI of the Consent Decree. Appendix VII of the Work Plan presents the monitoring frequency.

The monitoring program conducted during remedial action currently does not include the drinking water intake for Waukegan. Instead, monitoring will be conducted adjacent to the dredging area. Should

there be releases, additional monitoring further from the dredging area may be needed. The drinking water intake is a significant distance from the dredging in the harbor. There isn't a need to monitor at that distance if there is no problem adjacent to the dredging.

The Department of Health, as a political subdivision of the State of Illinois, should work with the State to ensure that all local, legally applicable public health standards are identified and met.

d.) Mr. Cameron Davis submitted ten (10) comments on behalf of the Lake Michigan Federation.

**Summary**

Mr. Davis feels the 1989 remedy falls short of what is necessary to protect human health and aquatic resources. He also states that the plan is inadequate because it does not address what is referred to as "No Man's Land" and fails to provide the public participation envisioned in the Great Lakes Water Quality Agreement (GLWQA). Specific comments and Agency response follow:

**Comment**

1. EPA should detail the Consent Decree's relationship with a Remedial Action Plan (RAP) contemplated by the Great Lakes Water Quality Agreement (GLWQA).

**Response**

The proposed remedial action is taken pursuant to the requirements of CERCLA as amended by SARA. Under this statute, protection of the environment and the human health are the ultimate goals. CERCLA cleanups such as that in the instant case must achieve these goals taking into account several factors which include compliance with applicable and relevant and appropriate requirements (ARARs), preferences for permanent solutions, and community acceptance among others. The proposed remedial action also contains a RAP hereinafter "OMC RAP". The definition of the OMC RAP is found in Section II of the proposed Consent Decree. It is defined as the following: "Remedial Action Plan" or RAP means the plans for the implementation of the remedial design, remedial action, resource restoration, and operation and maintenance and monitoring to be undertaken at the site as set forth in Appendices III through VII and any modifications thereto made in accordance with the provisions of this Decree and all plans approved hereunder."

The RAP under the GLWQA hereinafter "GLWQA RAP" is defined in Subparagraph n of Article VI of the GLWQA as measures to ensure the development and implementation of Remedial Action Plans for Areas of Concern pursuant to Annex 2.

The GLWQA RAP for the "Area of Concern" which encompasses the proposed remedial action has not been developed. According to the Great Lakes Water Quality Board (GLWQB), the State of Illinois has primary responsibility for developing the GLWQA RAP. The Great Lakes Water Quality Board is the principal advisor to the International Joint Commission (IJC) (see Preface to the 1987 Report to the IJC on Great Lakes Water Quality by the GLWQB). Pursuant to Article VI Section I of the agreement, the IJC role is to "assist in the implementation of the agreement".

A timeframe for completion of the GLWQA RAP is still undeterminable. While the delay in the development of the GLWQA RAP apparently centered around litigation (see page 54 of the 1987 Report), this 1987 Report also states that completion dates of all RAPs, were underestimated given the time and resources needed to develop GLWQA RAPs. It is expected that the specific timetable for development of the Waukegan Harbor Area Of Concern RAP will be established in the not too distant future. Further, as stated in Appendix A to the 1987 Report on Great Lakes Water Quality entitled "Progress in Developing Remedial Action Plans for Areas of Concern in the Great Lakes Basin", the OMC CERCLA RAP is expected to be a starting point for preparing a GLWQA RAP. When the GLWQA RAP timetable has been established, U.S. EPA anticipates that Illinois will complete the RAP and submit it to the IJC for review.

EPA therefore believes that it has not violated the GLWQA as stated by the commentor. EPA also notes that in most of the designated Areas of Concern where some form of remedial action is ongoing or has already taken place, GLWQA RAPs have not been developed and reviewed by IJC prior to some form of remedial action being implemented.

The commentor also stated that since the OMC RAP has not undergone IJC review, that public comment as requested by the GLWQA is somehow rendered meaningless.

The proposed remedial action has had the benefit of public input in several forms. Pursuant to Section 117 of SARA, EPA held a 30 day public comment period during which time a public meeting was also held. As a result of requests for time extensions, the public comment period was extended for a additional 25 days. In accord with 28 CFR 50.7 an almost concurrent public comment was held by the Department of Justice. Additional opportunities for public participation were provided on two separate occasions in 1983 and 1984, and a public meeting held in 1984 in connection with consideration of a remedy having essentially the same scope as the proposed remedy. To the extent that the GLWQA RAP incorporates a remedy under the same scope as that of the OMC RAP, EPA believes that meaningful public comment opportunities have been provided and that EPA's responses have been well documented in 1984 and in the context of this responsiveness summary for the 1989 modified remedy.

**Comment**

2. EPA should consider the contaminant issues associated with the Corps of Engineers (COE) dredging project and the potential economic and environmental harm which may result from not addressing the "No Mans Land" area.

**Response**

EPA has determined that the cleanup program defined in the proposed Consent Decree protects human health and the environment. Thus, EPA does not believe that the objectives of SARA require dredging of the so-called "no man's land". Having concluded that the proposed Consent Decree remedy protects human health and the environment, it is not necessary for EPA to anticipate and address speculative scenarios regarding disposition of sediments that are beyond the scope of the proposed remedy. While EPA understands that the COE is considering the possibility of dredging the area referred to as the "no man's land", dredging this area has not traditionally been the responsibility of COE, and EPA is not aware that COE has reached any decision concerning this matter. Thus, it would be premature to attempt any evaluation of the nature or adequacy of any COE dredging and disposal program that might be undertaken by the COE. The COE, through their Environmental Impact Statement process, will determine the amount of sediment removal and the appropriate disposal method for their navigation channel dredging objectives.

In its comment, the Lake Michigan Federation appears to assume that the in-place containment cells contemplated under the Consent Decree could readily accommodate disposal of the sediments which the commenter believes should be removed from the "no man's land". However, the containment cells described in the RAP do not have sufficient capacity for disposal of the volume of sediments present in the "no man's land", and significant changes to the current remedial design would be necessary to address sediments from this area. EPA does not believe that such design changes are necessary because the remedy as described in the RAP already meets the requirement of CERCLA.

**Comment**

3. The 50 ppm threshold is policy-based and does not take into account ecological and human health considerations.

**Response**

The 1989 remedy proposes only certain changes to the 1984 proposed remedy. One element of the remedy which has not changed is the designated project line corresponding to an area where sampling results have shown the average sediment concentration to be less than 50 ppm. This has been referred to as the "50 ppm line". Public comment on this element of the remedy was conducted in 1984,

revisiting the issue is unnecessary since there are no new data which would change the rationale for this decision. However, some additional discussion may clarify the Agency's perspective.

The CERCLA remedial selection process requires EPA to consider the extent of cleanup necessary to protect human health and the environment, the feasibility of remedial alternatives and the cost effectiveness of various remedial options that meet protectiveness requirements. EPA does not believe that removal of all contaminated sediments is either feasible or necessary to provide protection of human health and the environment.

The 1981 HydroQual, Inc. Report evaluated concentration ranges for residual PCBs in sediment and projected possible impacts to human and aquatic resources. The report concluded that residual concentrations between 100 and 10 ppm left after dredging would result in a PCB influx to Lake Michigan which approached zero. This, therefore, determined the protectiveness range. It represents a range which, if achieved, would virtually eliminate the Waukegan Harbor as a contributor to further contamination in Lake Michigan.

Based on the HydroQual Report, any remedy that establishes a sediment cleanup level of 100 ppm or less could be considered protective of human health and the environment. In order to provide an extra margin of safety and account for uncertainties inherent in the modeling process, EPA decided to require cleanup to the "50 ppm line" in order to assure protection of human health and the environment. Remedial alternatives based on a sediment cleanup level below 50 ppm raise technical and cost-effectiveness concerns. EPA had to consider the technical limitations inherent in the available dredging technology. Any dredging technique would involve some resuspension of sediment into the water column, and resettling back into the sediment. It may be difficult to assure that lower sediment levels could be achieved given the technological limitations. Such a technical challenge isn't necessary since protectiveness can be achieved by the 50 ppm level. Given these key concerns, along with other criteria of concern (see ROD, Table 1), it became clear that the most conservative approach required to meet the protectiveness goals was represented by the 50 ppm concentration line.

It should be emphasized that the decision regarding cleanup levels necessary to protect human health and the environment was based on site specific data. Site specific data were used in the HydroQual model. The final Agency decision with respect to the 50 ppm line was based on the model and other site specific conditions, and not on the basis of a mechanical application of the 50 ppm TSCA action level for dredged materials.

Furthermore, the Agency believes that average PCB concentrations below the "50 ppm line" are lower than 50 ppm. Data contained within reports referenced by some commenters were determined to be unusable because unconventional analytical methods were used. Inconsistent

analytical methods and/or questionable quality assurance made it difficult to compare results on the same basis. However, EPA did not eliminate or ignore data, instead, a data sensitivity analysis was needed. OMC subsequently performed Kriging analysis. Kriging analyses develop a statistical "best fit" concentration contour line based on the data input. The Kriging analysis was done for several data scenarios. One scenario used all available data without regard to analytical method. Another scenario used only the data for which the quality was not in question. The comparison of these scenarios showed only minor differences in the location of the "50 ppm line". This exercise demonstrated that the data determined to be unusable were not a sensitive factor in delineation of the "50 ppm line".

Lake Michigan Federation also asserts that the 50 ppm clean up threshold will not result in compliance with the water quality standards, the GLWQA objective in whole fish, the IJC criteria of 10 ppm for sediment or the U.S. Fish and Wildlife proposed criteria of .05 ppm. The cited criteria listed for sediment and fish do not constitute binding requirements of federal or state law and are not considered ARARs that must be achieved through implementation of the selected remedy. As further explained in NRDC response to comment 10 (see page 23) implementation of the proposed remedy essentially eliminates PCB influx to the Lake from the site.

Dredging the Upper Harbor to the chosen 50 ppm threshold result in greater than 96% removal of PCBs from the entire harbor area. This is the cost-effective approach to achieving the protectiveness goals.

Finally, although EPA does not regard dredging beyond the 50 ppm line to be necessary for protection of human health and the environment, EPA notes that the U.S. Army Corps of Engineers ("COE") regularly conducts navigational dredging projects in certain areas beyond the "50 ppm line". Although the routine COE dredging operations do not extend all the way to the 50 ppm line that would be dredged as part of the Superfund remedial action, EPA understands that the COE is considering the cost effectiveness of extending their dredging project to meet the 50 ppm line. Should this occur, there would be some additional removal of low level contaminated sediments, although it is difficult to predict the impact of such navigational dredging operations on final PCB concentrations in any areas dredged by the COE.

**Comment**

4. EPA should have a "demonstration program" to display the Taciuk process.

**Response**

The request for performance information based on actual site data was also received at the public meeting. As a result of these requests, EPA will ensure that the community is appraised of on-

site pilot scale performance results when that information is available. It should be noted that the Administrative Record contains performance data on this process from bench scale studies performed in Canada.

**Comment**

5. EPA should appoint a Citizens Advisory Committee for the Waukegan Harbor area.

**Response**

EPA does not initiate such committees, but would cooperate with such a committee if it were formed. EPA intends to keep all parties informed of site progress through fact sheets, press releases and other appropriate means.

**Comment**

6. The Consent Decree does not indicate whether soils in the new Slip 3 have been tested for PCBs.

**Response**

Soil borings were taken around this area prior to the 1984 ROD. This area is not considered PCB contaminated.

**Comment**

7. Plans to eliminate the outfall at the west end of slip 3 are unclear.

**Response**

It appears that the commentor is referring to an outfall which was closed in 1976.

**Comment**

8. A liner is advisable underneath the storage tanks to control possible leakage.

**Response**

EPA assumes the commentor is referring to the storage tanks used to temporarily store the PCB extracted oil. The Spill Containment and Counter measures (SPCC) Plan program requirements will guide the design details associated with this element of the remedial action. If there are leakage problems, OMC will be required to remediate them.

**Comment**

9. It is unclear what responses are planned if dioxins or furans are emitted during the treatment process.

**Response**

Section 4 of the Work Plan for Treatment of Select Soils and Sediments discusses air emissions. It states that data gathered during the pilot tests conducted on-site is needed prior to identifying the type of contaminants and, therefore, the necessary pollution control equipment. Moreover, commencement of all field activities is subject to approval by U.S. EPA. It should be noted that the design of the Taciuk processor already includes a carbon adsorption system for air emissions. This is state-of-the-art technology. Action levels which trigger contingency plans will be included in the design.

**Comment**

10. PCB removal criteria in Appendix 4, appear to be biased toward lower levels through averaging.

**Response**

Each sample taken is split three ways. If the analysis of the first split is high, the other two splits are analyzed. Since they all represent the same sample, the reanalysis serves more as a quality control check on the laboratory performance than as a bias. Standard performance troubleshooting procedures would suggest that one be certain of the results before taking corrective actions.

e.) Messrs. James F. Simon and Patrick G. O'Malley submitted sixteen (16) comments on behalf of the Natural Resources Defense Council, Inc. (NRDC).

**Comment**

1. A proper clean-up of Waukegan Harbor is essential.

NRDC emphasizes that the cleanup of Waukegan Harbor must be done carefully because mistakes in the cleanup plan and/or process could result in failure to remove the hazards or even increase the danger by further distributing PCBs throughout the environment.

**Response**

EPA agrees with the commentor that the proposed remedial action for Waukegan Harbor site must be implemented with care to assure protection of public health and the environment. All elements of the remedial action will be executed in compliance with ARARs.

The proposed Decree includes numerous provisions designed to assure that the required remedial work is undertaken with care. For example, the Decree includes provisions that:

1. establish technology-based requirements for various aspects of the remedial action, including:

a. use of best hydraulic dredging equipment and techniques available for removing contaminated sediments from Slip 3 and from the Upper Harbor (see IPC Work Plan, Appendix II, §4.5.3, pl and §4.5.4);

b. for containment cell construction, including limits on the permeability of IPC walls (see Appendix III, Table 1, pp A.2, B.2-3);

2. require maintenance of an inward hydraulic gradient in containment cells in order to prevent leaks from the cells (see Consent Decree, Part V.D.1; IPC Work Plan, Appendix II, §4.8; O & M Plan, Appendix VII, §4.0;

3. establish stringent discharge limits to minimize discharges (see IPC Work Plan, §4.6.14.2);

4. require EPA review and approval of various work plans, design submissions and other documents pertaining to implementation of the remedy (see Consent Decree, Part V.D.2);

5. facilitate close supervision over the process by EPA and the State (see Consent Decree, Parts X.A [appointment of Remedial Project Manager and State Project Coordinators to oversee implementation of the Work]; IV.C and XIV [provisions for reimbursement of governmental oversight costs]; IX.A [reporting requirements to keep EPA and the State apprised of developments during implementation of the remedy]; and VI [providing for periodic EPA review of the effectiveness of the remedy, with a reservation of rights to seek additional relief in the event that EPA determines that the remedy is not protecting health and the environment]);

6. monitoring requirements for surface water discharges (Appendix III, §4.6.14), air emissions from the soil/sediment treatment process (Appendix IV. §4.1), ambient air monitoring at the site boundary (Appendix III, §3.5), and groundwater monitoring (Appendix VII, §3.0);

7. require reporting of any unanticipated releases during the remedial action (see Consent Decree, Part IX.C);

8. require adherence to quality assurance project plans and health and safety plans during implementation of the remedial action (see Consent Decree Part V.D [work must be conducted in accordance with RAP and approved pursuant thereto]; RAP is defined in Part III.L of Decree to include the QAPP and Health and Safety Plan);

9. require compliance with applicable laws (see Consent Decree, Part IV.E.1 and 3);

10. allow the RPM to halt work if conditions present an imminent and substantial endangerment (see Consent Decree, Part X.D.);

11. reserve the rights of the United States and the State to take additional response actions and seek additional relief from OMC in the event of a breach of the requirements of the Decree, or in the event that information received after entry of the decree indicates that the remedial action is not protective of human health and the environment (see Consent Decree, XVI.D. and E).

EPA agrees with the commentor's observation that the site currently "poses substantial risk to human health and the environment". Several factors mentioned by the commentor in this connection - the proximity of the site to heavily populated areas, the persistence and toxicity of PCBs, the tendency of PCB's to bioaccumulate - suggest the importance of proceeding with the cleanup expeditiously, as well as carefully.

**Comment**

2. The primary goal of the cleanup must be to protect human health and the environment.

NRDC quotes the SARA directives which mandate the Agency to select a remedy which is protective of human heath and the environment, complies with ARARs and is cost-effective. NRDC emphasizes that cost cannot be a justification for failure to meet the protectiveness standard.

**Response**

EPA again agrees with the commentor's position. EPA feels this Record of Decision adequately documents those findings and that the Administrative Record provides all the necessary support for those findings. EPA has complied with SARA in amending the 1984 ROD.

**Comment**

3. EPA has chosen a PCB-separation technology that is largely untested and that threatens human health and the environment.

NRDC states that the Taciuk process selected by EPA is largely untested, leaves extremely high amounts of PCBs in the residual soil, and like the bench tests, will release PCBs and furans into the environment. NRDC also feels that additional testing is necessary before EPA can determine if the process will be protective of health and the environment. NRDC also attached more specific

comments which challenge this process from Mr. Paul McGough of the Resources Conservation Company.

**Response**

Several points within this comment require clarification. The proposed Decree includes a PCB treatment performance standard that will assure effective removal of PCBs from the highly contaminated soils and sediments removed from designated "Treatment Areas". This performance standard requires that any treatment process employed by OMC shall result in the removal of at least 97% of the PCBs present in the material to be treated. See Decree, Part III.J at p. 10. Taciuk is one of 2 extraction processes examined in detail by OMC; the other extraction technology is known as the B.E.S.T. process, whose vendor, Mr. McGough, furnished NRDC with criticism of Taciuk. Data provided by Taciuk and B.E.S.T. indicate that both of these treatment processes should be capable of meeting the treatment performance standard set forth in the proposed decree. In this context, the choice of treatment technology vendors is appropriately left to OMC. Nothing in the proposed Decree requires OMC to use Taciuk process; nor will OMC's selection of Taciuk as a treatment contractor relieve it of responsibility for implementing additional measures, including reprocessing of materials or use of an alternate treatment process if the Taciuk process does not achieve the removal levels required by the Decree. See Consent Decree, Parts V.D.7 and XI.E.2.

Although it is true that the Taciuk process was originally developed for shale oil extraction, results of pilot studies demonstrate effectiveness of this process with PCB laden soil and sediment. In any case, as noted above, OMC would be required to provide treatment until the performance standard of 97% removal efficiency is achieved.

The commentor refers to shortcomings in methodologies of the Taciuk process. Although NRDC does not specifically identify the perceived methodolical shortcomings, EPA assumes the problems relate either to the inability of the lab test to demonstrate conclusively that the Taciuk process will achieve the 97% extraction performance standard or to the test emissions data for evaluating the type of emissions problems which may be present during full scale operation.

With respect to the attainment of the required extraction efficiency, the Consent Decree clearly states in Section V that whatever treatment methodology is used, the performance standards must be met. With respect to emission testing, EPA does not believe that any methodological flaw renders the pilot testing inadequate for purposes of determining whether such treatment can be conducted in a manner which will protect human health and the environment during full scale operations.

In any event, as suggested by the commentor, the proposed remedy does contemplate additional testing of any PCB treatment process, in the

form of an on-site pilot test which must be approved by EPA prior to the general operation of the system. See §4.1 of Appendix IV to the proposed Decree, and Part V.D.2 of the Consent Decree.

Both IEPA and USEPA will require close supervision of either technology to assure protection of health and the environment. This effort includes an on-site pilot test prior to EPA approval of the selected system (Taciuk). The pilot test will help refine the emissions control equipment. It is true that small amounts of PCBs and furans were released during the bench scale testing. It is likely that furans were in the feed stock, and not created as a result of the treatment process, since the Taciuk process is anaerobic and operates at a lower temperature where furans and dioxins should not be formed. However, the pilot testing will be closely scrutinized for these and other chemicals. In addition, either technology will be monitored during operation for stack and fugitive emissions. See appendix IV to the Consent Decree for a more detailed explanation of the monitoring requirements.

The Taciuk process is an established technology with a new application to Superfund problems. SARA Section 121(b)(1)(G) states that "The President shall select a remedial action that is protective of human health and the environment, that is cost effective, and that utilizes permanent solution and alternative treatment technologies or resource recovery technologies to the maximum extent practicable." (emphasis added). EPA feels Congress intended to support and motivate the scientific community to develop and use technologies such as Taciuk and B.E.S.T. EPA recognizes that some risk is inherent in progressing toward this goal. We therefore intend to be conservative in the approach to protection of health and the environment during remedial action. During the design phase very stringent Health and Safety Plans will be developed which include appropriate contingency plans to ensure adequate protection of human health and the environment.

**Comment**

4. EPA has improperly chosen a short-term rather than a permanent remedy.

NRDC feels the selected remedy is short-term because "substantially contaminated sediment and soil "remain in the on-site containment cells.

**Response**

Contrary to the implication of the commentor, SARA §121(b)(1) does not preclude selection of remedies which include provisions for containment of hazardous substances; rather §121(b)(1) expresses statutory preference for remedial action in which a principal element is treatment that permanently reduces the volume, toxicity or mobility of the hazardous substances.

The remedy set forth in the proposed by Consent Decree satisfies the SARA §121 preference for remedies that permanently reduce the volume, toxicity, mobility of hazardous substances.

As discussed above, the proposed consent decree requires treatment of soils and sediments from "Treatment Areas" containing the most highly contaminated materials on site by means of a PCB extraction process that will remove 97% of the PCBs from the materials to be treated.

EPA and OMC estimate that in total 16,000 cubic yards containing 742,000 pounds of PCBs will be treated by the extraction process. By contrast, the 217,700 cubic yards of soil remaining in the containment cells, contain approximately 334,000 pounds of PCBs. Thus, the PCB extraction process required as part of the proposed remedy would apply to soils and sediments containing a large part of the total mass of PCBs at the site. The extraction process would strip at least 97% of these PCBs from the treated materials. Thus, the treatment process would significantly reduce the maximum concentration of PCBs remaining at the site.

Under the proposed Decree, the extracted PCBs must be destroyed in accordance with applicable laws and regulations. See Consent Decree, Part V.D.1.(b). Under applicable TSCA regulations, the only method currently authorized for disposal of the extracted PCBs is incineration in a TSCA approved incinerator. See 40 C.F.R. §761.75.

Thermal extraction of PCBs extracted from "Treatment Area" soils and sediments will permanently and significantly reduce the total mass of PCBs now found at the Waukegan Harbor site. Off-site destruction with an incineration method would convert the PCBs into non-toxic combustion products, thereby also reducing the toxicity of the wastes. Thus, the proposed remedy satisfies SARA requirements by providing permanent and significant reductions in the volume and toxicity of hazardous substances from the Waukegan Harbor site.

The combination of treatment (not recommended in the 1984 ROD) and containment for soils and sediments is protective, cost-effective, and satisfies SARA's preference for treatment.

**Comment**

5. The proposed containment would not meet the criteria applicable to a PCB Landfill under TSCA and RCRA Regulations.

NRDC states that EPA has not complied with TSCA requirements, specifically, the prohibitions to disposal where there is a hydraulic connection between the groundwater and surface water. In addition, the monitoring and closure requirements of RCRA have not been met.

**Response**

Under TSCA regulations found at 40 CFR 761.60 Alternate Disposal Methods are allowable, provided criteria listed are met. The Administrative Record and this ROD amendment specify how TSCA has been complied with. While TSCA regulations found at 40 C.F.R. §761.75(b), address chemical waste landfill siting requirements, (see especially subparagraphs (1), (3), and (5) of this regulation), other sections of the TSCA regulation allow for alternate disposal methods in appropriate circumstances. See 40 C.F.R. Section 761.60(a)(5)(iii). The commentor should refer to the Constantelos memo "Compliance with TSCA ARARs at the Waukegan Harbor Hazardous Waste Site and Application for Alternative Disposal of PCB Contaminated Sediments" dated 9/12/88; and, the Adamkus memo "Application for Alternative Disposal of PCB Contaminated Sediments at the Waukegan Harbor Waste Superfund Site" dated 9/2/88. Briefly, it was determined that construction of an approvable upland landfill was not feasible. Site selection studies conducted identified only one upland location for building an approvable TSCA landfill. Greater public exposure was a consideration due to dewatering and off-site transportation of contaminated materials. The complexities involved in the administrative process leading to the selection of a new landfill site in the State of Illinois were several. Moreover, it is unlikely that any new landfill could be constructed and permitted without a delay of 12 to 24 months. All parties agree that it is more desirable to achieve a cleanup sooner than to delay work for an undetermined period of time to obtain siting approval. The proposed remedial action meets the criteria for an alternate disposal method. Therefore, EPA has complied with TSCA requirements.

The commentor states that the proposed remedy does not comply with ARARs under RCRA. Pursuant to Section 121 of SARA remedial actions such as that reflected by the proposed Consent Decree must meet legally applicable or relevant and appropriate requirements (ARARs) of other environmental laws, including RCRA.

A "legally applicable" requirement is one which would legally apply to the response action if that action were not taken pursuant to Section 104 or Section 106 of CERCLA. A "relevant and appropriate" requirement is a provision of Federal or State law that, while not "applicable" to the remedy, is designed to apply to problems sufficiently similar that their application is considered appropriate.

RCRA is not applicable in the present case because the jurisdictional prerequisites are not met. RCRA regulates the management and disposal of solid and hazardous waste. The site never accepted hazardous waste for treatment, storage or disposal after the effective data of RCRA. Moreover, available data do not support the conclusion that the site contains any "listed" or "characteristic" RCRA hazardous wastes. Therefore the jurisdictional prerequisites of RCRA are not met and therefore RCRA is not applicable.

Making a determination of whether RCRA is relevant or appropriate to a particular site requires looking at several site specific factors, as well as the specific goals and objectives of the statute and regulations, and the substances covered by the requirement thereunder. The overall determination requires the Agency to exercise its best professional judgment regarding the similarity between the circumstances and conditions presented by the CERCLA site and those addressed by particular RCRA requirements.

It is EPA's determination that RCRA is not relevant or appropriate to the proposed remedy for the Waukegan Harbor site. As stated above the overall objective of RCRA is to regulate the management and disposal of hazardous or solid waste. However, the substance for which this remedy is designed is PCBs. PCBs will be stored, treated and monitored for under the proposed remedy. PCBs are not regulated under RCRA; furthermore, TSCA regulations contain specific provisions defining appropriate requirements storage and disposal of PCBs, including PCB contaminated soils and dredged materials. RCRA is also considered not relevant and appropriate because to the extent any hazardous substances other than PCBs may be present above background levels their presence is negligible relative to the PCBs present. Even though EPA does not believe that RCRA requirements are relevant and appropriate to the Waukegan Harbor remedy, in connection with the design for the proposed PCB containment cells the Agency did consider and incorporate certain features commonly associated with RCRA landfills. Thus, the proposed containment cell coverings will comply with the RCRA regulations as outlined in 40 C.F.R. 264.310 and groundwater monitoring wells will be placed around the perimeter of each cell.

Based on the above discussion EPA therefore disagrees with the commentor's assertion regarding RCRA ARARS.

**Comment**

6. EPA has not demonstrated that the proposed containment would prevent ground water contamination.

NRDC quotes a 1981 EPA report which rejects the option of containing PCB wastes in Slip 3; a critical feature of the 1989 amended ROD.

**Response**

Prior to adoption of the 1984 ROD, EPA evaluated use of containment cells and concluded that this remedial component would effectively reduce risks from releases at the site. Thus, prior to issuing the 1984 ROD, EPA had proposed to convert Slip 3 into a containment cell, as does the current proposed remedy. Under that proposal, highly contaminated sediments would have been contained within the slip 3 cell. Although EPA did not ultimately adopt this approach in the 1984 ROD, EPA did not reject use of Slip 3 as a containment cell due

to concerns about the feasibility of containing materials within Slip 3. Rather, EPA modified its proposed remedial action to avoid use of Slip 3 because of public comments that expressed concerns about community impact of closing Slip 3.

In 1989, the recommended engineering controls have changed substantially. The cut-off wall will have 16 feet of soils which provide a "buffer zone" between the cell and the open water. The cell will contain significantly lower levels of PCBs, it will be capped with a synthetic liner as well as a soil cap, and will meet other protective design criteria (see Appendix III, Table 1). A critical difference is also the internal hydraulic containment system employed in this remedy which will draw water inward, preventing ground water from escaping outward. (See Decree, Part V.D.9, Appendix III, §4.8 and Appendix VII, §4.0.)

EPA does not believe that future ground water contamination will occur as a result of the 1989 remedy. However, if that does happen, corrective actions will be triggered and paid for by contingencies set out in the Consent Decree (see Appendix VII, §3.0). In addition, U.S. EPA has reserved its right to require additional response action under CERCLA Section 106 or to take additional response action pursuant to CERCLA Section 104 upon its determination that such action is necessary to assure protection of human health and the environment. See Consent Decree, Parts VI, XVI(D).

**Comment**

7. EPA has improperly chosen off-site rather than on-site treatment.

NRDC asserts that EPA proposes an off-site remedy that should be considered the "least favored" under SARA. EPA, in favoring off-site treatment, has not specify the method, location or manner of transportation.

**Response**

With regard to the commentors discussion of SARA, EPA assumes that the commentor is referring to 42 U.S.C. 9621(b). Assuming this clarification, the commentor takes the language of the statute out of its relevant context.

Section 121(b)(1) of SARA provides:

Remedial actions in which treatment to permanently and significantly reduce the volume, toxicity or mobility of the hazardous substances, pollutants and contaminants are to be preferred over remedial actions not involving such treatment. The off-site transport and disposal of hazardous substances or contaminated materials <u>without such treatment</u> should be the least favored alternative remedial action where practicable treatment technologies are available. (emphasis added).

§121(b)(1) of SARA is designed to discourage uncritical recourse to remedies which simply transport hazardous substances from one site to another without any effort to reduce the volume, toxicity or mobility of the hazardous substances, pollutants or contaminants. This provision does not purport to discourage remedies which include some off-site transport and disposal where the remedial action does include provisions for reducing the volume, toxicity and mobility of the hazardous substances, pollutants or contaminants. Nor does §121(b)(1) of SARA create preference for conducting the treatment component of remedy at the on-site location, as long as the remedial action results in a reduction of the volume, toxicity and mobility of hazardous substances, pollutants or contaminants.

Since the remedy in the proposed Consent Decree does provide for permanent and significant reductions of volume, toxicity and mobility, the use of off-site disposal facilities is fully consistent with SARA §121.

This remedy actually has two treatment steps. EPA has referred to them as the on-site PCB extraction and the off-site PCB destruction. The portion of the remedy to be implemented off-site is the destruction of the PCB oils extracted from the soils and sediments. The ROD and Consent Decree are silent on the method, location and manner of transportation of the extracted PCBs for several reasons. First, and most importantly, these decisions will be determined by the applicable laws in place when off-site destruction of the extracted PCBs actually occurs. The TSCA regulations currently call for incineration of all liquids which contain greater than 500 ppm PCB. While an incineration-equivalent process could be used, none are currently permitted. This effectively limits the options available in the market place. Secondly, the compliance status of licenced disposal facilities change periodically. Thus, it would not be appropriate to designate facilities until it is time to use them. Finally, the decree does require transportation and disposal in accordance with applicable laws and regulations (see Consent Decree, Parts IV.E.1 and 3, and V.D.1(b)).

The proposed remedial action meets the statutory preference of Section 121. The proposed remedial action calls for the treatment of certain contaminated sediments prior to off-site transport and destruction. Moreover, as a result of the extraction treatment system to be used on-site, the volume of material taken off-site is far less than envisioned in the 1984 ROD. Approximately 392 cubic yards (20 truck loads) are expected to be taken off-site compared to the 11,200 cubic yards (570 truck loads) of material anticipated in 1984.

**Comment**

**8. EPA has arbitrarily excluded a large portion of the site from cleanup.**

NRDC reiterates the concern posed by the Lake Michigan Federation about the "No-Mans Land" below the 50 ppm project line.

**Response**

See response to Lake Michigan Federation, comment number 3, page 9.

**Comment**

9. EPA's proposed no-action level of 50 ppm for PCBs in the sediment is not adequate to protect human health and the environment and is contrary to law. In this comment, NRDC raises many of the same points presented in Lake Michigan Federations's comment 3. In addition, NRDC implies that 40 C.F.R. Section 761.135 establishes a soil decontamination standard of 1 ppm for PCBs, and that the remedy must achieve a proposed sediment cleanup standard of .05 ppm.

**Response**

Many of the points raised by NRDC in this comment are addressed above in EPA's response to Lake Michigan Federation's comment no. 2. In this response, EPA will address NRDC's suggestion that EPA has adopted a 1 ppm standard for cleanup of PCBs in soil.

Contrary to NRDC's suggestion, there is no numerical PCB cleanup standard in 40 C.F.R. §761.135. There are some numerical standards in 40 C.F.R. §761.125, which is part of the TSCA PCB Spill Cleanup Policy set forth in Subpart G of Part 761; however, none of the provisions of the TSCA PCB Spill Cleanup Policy establishes a 1 ppm standard for cleanup in soils. On the contrary, the policy contemplates cleanup of PCB-contaminated soils to levels ranging from 10 ppm to 50 ppm or higher, depending on the setting of the spill. See e.g., 40 C.F.R. §761.125(C)(V)(2)(ii), (c)(3)(v)(a)(d)(n), (c)(4)(v). The only reference in 40 C.F.R. §761.125 to 1 ppm relates to the concentration of back soils that will be used to cover residual PCBs not removed as part of the spill cleanup. Such references do not amount to adoption of a 1 ppm soil cleanup standard.

Furthermore, EPA does not regard the TSCA Spill Cleanup Policy as an ARAR which must be attained at the conclusion of CERCLA cleanups. In the first place, the policy has not been adopted as a legally binding regulation through the codification process; while EPA may consider such policies in the process of selecting a remedial action, it does not regard such policies as ARARs. In the second place, on its face, the Policy applies only to spills occurring after May 4, 1987. See 40 C.F.R. §761.20(a). Thus, the provisions of the Policy are not applicable to the Waukegan Harbor cleanup, which addresses cleanup of PCBs discharged long before May 4, 1987.

EPA has recognized that older spill sites present different considerations regarding the pervasiveness of contamination, the

types and magnitudes of likely exposure and the difficulty of cleanup than the typical electrical equipment spill considered by the Agency in developing the Policy. See 40 C.F.R. §761.20(a)(1)(ii) and (e)(2). For such reasons, EPA has specifically recognized that the PCB Spill Cleanup Policy:

> does not affect cleanup standards or requirements for the reporting of spills imposed, or to be imposed under other Federal statutory authorities, including but not limited to, the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)as amended by the Superfund Amendments and Reauthorization Act (SARA). See 40 C.F.R. §761.120(e)(1). Furthermore, even for new spills, the PCB Spill Cleanup Policy doesn't apply to spills in surface water. 40 C.F.R §761.120(a)(2) and (d)(2)(i). Even where the policy applies, it does not establish a 1 ppm standard. See 40 C.F.R. 761.125(c)(2)-(i)(4).

Finally, the Fish and Wildlife Services recommended sediment action levels of .05 ppm for PCBs are not legally binding and are therefore, not ARARs.

**Comment**

10. EPA's proposed cleanup does not protect the water quality of Lake Michigan.

In this comment, NRDC offers several criticisms of the remedial action set forth in the Consent Decree and the RAP. NRDC states that there has not been a showing of how the proposed remedial action will rectify contributions made by the site to violations of Water Quality Standards. NRDC also argues that the proposed remedy may exacerbate water quality problems and that the Consent Decree does not adequately show how discharges from remedial operations will be controlled. NRDC suggests that the Consent Decree authorizes various remedial activities to discharge PCBs at concentrations that fail to comply with CWA standards for the control of toxic pollutants. In addition, NRDC argues that there is no justification for provisions in the proposed Consent Decree which provide for a relaxation of effluent limitations regulating the PCB and suspended solids content of certain existing discharges of storm water and non-contact cooling water. NRDC also suggests that the Consent Decree should require more frequent and controlled monitoring of discharges than will occur during implementation of the remedy.

**Response**

As explained above in response to comment 3 of the Lake Michigan Federation, EPA believes that the remedy set forth in the proposed

Consent Decree is protective of human health and the environment, as required by Section 121(b) of CERCLA.

Implementation of the proposed remedial action will eliminate Waukegan Harbor as a continuing source of PCBs to Lake Michigan and result in water quality values at the mouth of the Harbor that approximate ambient values in the near shore. See Hydroqual, Inc. Report.

EPA disagrees with NRDC's assertion that the remedial action will not rectify contributions made by the site to the Lake. EPA in selecting this remedy considered that other sources make the substantial contribution to the PCB Water Quality problem in the Lake. For example, the HydroQual Report estimated that the Waukegan Harbor site may contribute between 10 and 20 kilograms of PCBs to Lake Michigan annually in the period prior to any removal of contaminated Harbor sediments, whereas it is suggested that atmospheric sources may contribute between 900 and 4600 kilograms of PCBs to the Lake annually, and another 500 to 1000 kilograms enters the Lake as a result of dry deposition and other point source discharges.

In addition, the HydroQual Report included modeling studies indicating that water quality outside Waukegan Harbor is not highly sensitive to sediment cleanup levels in Waukegan Harbor.

Given the significance of other current source contributions to Lake Michigan, any water quality sample taken in the Lake after the remedial action would reflect contamination from multiple other sources. Thus, the Agency has endorsed a remedy which results in a manifold reduction of the PCB influx to Lake Michigan which effectively eliminates the OMC site as a contributor to water quality problems in Lake Michigan. EPA has determined that the selected remedy, leading to the overall reduction in the loading of PCBs to Waukegan Harbor and Lake Michigan, will provide the most substantial, direct, rapid and feasible contribution to the full achievement of the designated uses of these waters. The selected remedy if taken in conjunction with other Agency efforts and natural processes will reduce the PCB load to Lake Michigan will result in the eventual virtual elimination of the PCB problem in the Lake. Finally, the HydroQual Report concludes that a source removal at the site, such as that which would be represented by the proposed remedial action would essentially eliminate the influx of PCBs to Lake Michigan. This conclusion is also corroborated by the 1987 OMC Risk Assessment.

NRDC also states that the remedy will exacerbate existing water quality conditions. Although EPA recognizes the need for care in implementing the remedial action (see Response to NRDC Comment #1), the Agency believes that the proposed Consent Decree and the RAP include adequate provisions to minimize short-term impacts of dredging activities and that the remedy will enhance rather than exacerbate environmental conditions.

Prior to adoption of the 1984 ROD, EPA evaluated remedial alternatives which did not involve removal of contaminated sediments from the Harbor, including proposals for solidifying, fixing, treating or burying the contaminated sediments in place. For reasons set forth in the RI/FS (the 1984 ROD), EPA concluded that these other remedial actions did not reliably assure adequate protection of human health and the environment. EPA remains convinced that dredging represents an important element of any reliable, protective remedy for the Waukegan Harbor site. At the same time, EPA has recognized the need to take appropriate steps to minimize short-term impacts resulting from dredging operations. This is one of the reasons that the highly contaminated sediments from Slip 3 will be removed only after the slip has been sealed off from the Harbor. The dredging will temporarily resuspend some amount of sediment into the water column. This is unavoidable with any selected technology for removing contaminated sediment from the Waukegan Harbor site.

The proposed Consent Decree includes numerous provisions to minimize adverse impacts from dredging activities. For example, the RAP attached to the Consent Decree requires use of the best available hydraulic dredging techniques and equipment to control releases during dredging activities. See Appendix III, Section 4.5.3-4.5.4. OMC will have the burden of demonstrating that the selected technology is, indeed, the best available.

EPA also considered this resuspension issue when reviewing the design possibilities of the remedial action. Thus; as previously stated, waters generated during dredging and dewatering of Slip 3 sediments will be returned to Slip 3. There will be no discharges from this operation during this period back to the Harbor. The dredged sediments will be sent to a treatment area for removal of PCBs.

In the next step, the dredgings from the upper Harbor will be placed in the Slip 3 containment cell. During this phase of dredging operations, OMC will be required to maintain a silt curtain and oil booms across the mouth of the Harbor to prevent or minimize migration of resuspended sediments to Lake Michigan. See Appendix III, Section 4.5.4. Water from the upper Harbor dredging operations will be treated using sand filtration and coagulants before such waters are returned to the upper Harbor. See Appendix III, Sections 4.5.4 and 4.6.14.2 (Category 1 water). The PCB concentration of such discharges may not exceed 15 ppb, and OMC will be required to implement best management practices to reduce PCB levels in such discharges whenever this dredge water effluent exceeds 5 ppb. Ibid.

Although NRDC has observed that the treatment system for Upper Harbor dredging waters is not designed to remove dissolved PCBs from this effluent, EPA believes that the proposed treatment system will effectively remove the vast majority of PCBs present in such effluent. It is generally recognized that PCBs have a strong

tendency to attach themselves to suspended solids. For this reason, PCBs can be removed to a large degree by the coagulation and filtration processes required for treatment of the Upper Harbor waters. Available data do not support NRDC's assertion that there are massive quantities of PCBs present in the water column that would remain untreated during the Harbor dredging operations.

After completion of the Upper Harbor dredging, the Upper Harbor will be treated with coagulant to settle suspended sediments prior to removal of the silt curtain. See Appendix III, Section 4.5.4. As part of the required predesign activities, OMC will evaluate various alum/polymer coagulant mixes, and OMC will be required to use the most effective coagulant mixture evaluated. See Appendix III, Section 2.2.3. Upon completion of the Upper Harbor dredging, Slip 3 will be continuously dewatered to compact the dredgings and the waters will be treated by filtration and carbon adsorption. See Appendix III, Section 4.6.14.2 (Category 2 water).

In the case of the flows from Slip 3 during dredging, it was estimated that effluent concentrations following coagulation and filtration would be at levels approximately equal to or less than Harbor concentrations. Therefore, no significant advantage was judged to be gained through the addition of a carbon adsorption step at this stage of the remedial action. Also, the addition of a carbon step would complicate the treatment process and might slow it during a period in which rapid completion of the dredging is important.

EPA disagrees with NRDC's assertion that various discharge limitations established pursuant to the Consent Decree fail to comply with the substantive requirements of the Clean Water Act. The Consent Decree establishes discharge limitations for each of 5 categories of effluent that will be generated as a result of remedial actions required to implement the selected remedy. See Appendix III, §4.6.14. In addition, the proposed Consent Decree provides for a modification of the limitations applicable to discharges of stormwater and non-contact cooling water from certain outfalls regulated under OMC's currently effective NPDES permit for the Waukegan Plant. See Consent Decree, Part IV.G. All of the discharge limitations established pursuant to the Consent Decree are consistent with the substantive requirements of the Clean Water Act, as required by Section 121(e) of CERCLA. Under the Clean Water Act discharges of pollutants are regulated under the NPDES permit system.

The State of Illinois is authorized to administer the NPDES program pursuant to 33 U.S.C. §1251 et seq. In determining effluent standards, Illinois law adopts the standards set forth in Sections 301 and 302 of the Clean Water Act, See Section 309.141 of the Rules of the Illinois Pollution Control Board promulgated under the Illinois Environmental Protection Act. These requirements include, for conventional pollutants, application of the Best Conventional Pollutant Control Technology (BCT), and for all toxic and other pollutants, Best Available Technology Economically Achievable (BAT),

in addition to any applicable effluent standards of the Illinois Water Quality Standards, Section 304, if more stringent.

In establishing the discharge limits applicable to the 5 categories of effluent identified in §4.6.14 of Appendix III, the Agency considered the substantive requirements of the CWA necessary to set technology based effluent limits as listed in 40 CFR 125.3(c)(3). Such considerations included the volume of water to be treated, the effectiveness of the proposed treatment technologies (based on studies from other sites with similar conditions), and the overall PCB removal efficiency. EPA feels that the technologies required in the Consent Decree represent state-of-the-art contaminant removal technologies; therefore the effluent levels to be achieved are, in EPA's Best Professional Judgment (BPJ) in accordance with Section 402(a)(1) of the CWA, those that reflect the use of BAT for this site.

In addition, as a conservative measure to further reduce the discharges to the lowest possible levels, EPA required OMC to develop and obtain Agency approval of a Best Management Practices Plan that would identify additional measures to reduce pollutant concentrations whenever effluent values approach the specified discharge limits. For example, although the effluent limit specified for category I dredge water is 15 ppb, when 5 ppb is reached, OMC will be required to implement management practices such as adding additional coagulant (to facilitate the settling of sediment-bearing PCBs) in order to enhance the level of treatment provided. EPA believes that such BMP requirements will assure that the specified effluent limit is met or more likely, that the effluent concentration is substantially less than the allowed limit.

Section 301(b)(1)(C) of the CWA generally required point source discharges to meet effluent limitations necessary to assure compliance with water quality standards or BAT, which ever is more stringent by July 1, 1977. However, under Section 304(1)(1) of the CWA, States can extend the compliance with water quality standards until 1992 under certain conditions. States are required to develop and submit to EPA for approval, lists of waters that cannot reasonably be expected to attain water quality standards despite application of technology-based effluent limitations, including BAT, due to toxic pollutants. As part of any submission to EPA under Section 304 (1)(1)(D), States are required to develop an individual control strategy for reducing discharges of toxic pollutants to levels that are sufficient in combination with controls on point and non-point sources of pollution, to achieve applicable water quality standards no later than 3 years <u>after</u> the establishment of the control strategy. See CWA, Section 304 (1).

Pursuant to Section 304(1) of the CWA, the State of Illinois submitted to U.S. EPA a list identifying Waukegan Harbor/Lake Michigan as an area that is not expected to meet applicable water quality standards due to discharges of PCBs. EPA has reviewed and

agreed to Illinois's listing of the Waukegan Harbor site pursuant to Section 304(1)(1). Illinois's submission included a proposed individual control strategy (ICS) for the Waukegan Harbor site designed to reduce toxic pollutant discharges sufficient to achieve applicable water quality standards. In accordance with Section 304(1)(2) of the CWA, EPA will either approve or disapprove the State's ICS for the Waukegan Harbor site by June 4, 1989. Assuming EPA approves the State's ICS, the deadlines for achieving water quality standards for PCBs at the Waukegan Harbor site will be no later than June 4, 1992. EPA believes that June 4, 1992 represents an expeditious deadline for progress toward attainment of water quality standards through implementation of the Illinois ICS for the Waukegan Harbor site, recognizing that an integral component of the ICS is the removal of contaminated sediments from the Harbor. Since the proposed permit modification is in compliance with Section 304(1)(2), it is clearly in compliance with the CWA.

Prior to the deadline for achieving applicable water quality standards under the approved Illinois individual control strategy for Waukegan Harbor, OMC will have completed required dredging operations, removed a massive amount of PCB-contaminated sediments from the Harbor, and eliminated all discharges associated with dredging activities ("category 1" discharges).

Before the final compliance deadline in the approved Illinois ICS, OMC will also have completed the dewatering of Slip 3 sediments (thus eliminating "category 2" discharges), completed excavation of the North Ditch and construction of the East and West Containment Cells (thus eliminating further "Category 3" discharges), and completed the required extraction of PCBs from the specified highly contaminated soils (thus eliminating discharges of "Category 4" water). It should be noted that the long term ground water collection system ("Category 5") does not have a discharge location specified and is not terminated at the end of construction. The Consent Decree specifies the discharge location options of the local municipal sewage treatment plant North Shore Sanitary District (NSSD) or a location approved by EPA. In contemplating the discharge location, EPA will consider any limits and conditions imposed on OMC by its NPDES permit, so as not to result in any inconsistency between the NPDES permit compliance with the CWA, and the "Category 5" requirement for substantive compliance with the CWA.

Since these discharges (Categories 1 -4) will be eliminated prior to the deadline for achieving applicable water quality standards, EPA believes that the effluent limits established in Appendix III, Section 4.5.14 satisfy the requirements of the CWA.

As noted by NRDC, the proposed Consent Decree would authorize a modification of effluent limits applicable to discharges of stormwater and non-contact cooling water from seven outfalls regulated under OMC's currently effective NPDES permit. See Consent Decree, Part IV. The outfalls that would be affected by the

relaxation are known as outfalls 001, 006, 007, 008, 014, 015 and 016. From the standpoint of volume, most of the effluent discharged from these outfalls is non-contact cooling water which OMC obtains from Waukegan Harbor; a significantly smaller portion of the effluent for which modified limits would be established comes from stormwater runoff which is discharged on an intermittent basis. Outfalls 001 and 006 return non-contact cooling water (originally taken from Waukegan Harbor) back into the Harbor. Outfalls 007, 008 and 014 discharge primarily non-contact cooling water (obtained from the Harbor) into Lake Michigan (via the North Ditch, in the case of Outfall 014). Outfalls 015 and 016 discharge stormwater, including roofwater runoff, into lake Michigan via the North Ditch.

EPA has determined that the proposed modification of such effluent limitations is consistent with the substantive requirements of the Clean Water Act. The basis for this determination is set forth above. At the time OMC's currently effective NPDES permit was issued in 1983, a PCB discharge limit of 1 ppb was considered an acceptable limitation. The permit allowed OMC to achieve this effluent limitation through the implementation of a Best Management Practices (BMP) Plan. EPA believes that the dredging and construction activities required by the proposed Consent Decree may temporarily affect the quality of stormwater and cooling water effluent that can be attained through application of the management practices that are considered to represent BAT and BCT for these discharges. For example, construction activities will temporarily increase fugitive dust levels at the Waukegan Plant. PCBs can adhere to dust particles that may be deposited on roof and yard areas where runoff water is collected and discharged by means of point source outfalls identified above. Increased dust levels will temporarily add to the suspended solids and PCB content of stormwater runoff at the plant. Although the Decree requires OMC to employ best management practices to minimize the impact of construction activities on its stormwater discharges, EPA does not believe that such practices can assure consistent attainment of the original permit limit in the face of the changed conditions presented by the remedial construction activities.

Similarly, EPA believes that dredging activities in the upper harbor will have a temporary impact on OMC's ability to consistently achieve existing effluent limits applicable to discharge of the non-contact cooling water which is drawn from the Harbor. Under the Consent Decree, OMC would be required to suspend use of its Upper Harbor cooling water intakes during the dredging operations in order to minimize uptake of sediments that are resuspended during the dredging process. Upon completion of the dredging operations and treatment of Harbor waters using coagulants that will facilitate settling of any suspended sediments, OMC will resume use of cooling water from the Upper Harbor.

EPA believes that the application of best management practices cannot assure consistent achievement of the existing permit limits

during the period of required remedial construction activities. Therefore, interim limits consistent with Section 304(1)(1)(d) are needed.

The proposed modifications of the permit effluent limitations issued in 1987, but never effective, place a 5 ppb daily maximum on discharges to the Harbor and the storm water only discharges to the North Ditch (which is classified as a general use stream by IEPA). For discharges of cooling water/storm water to the Lake the limits are proposed to be modified to 5 ppb daily maximum and 1 ppb monthly average.

To conclude the discussion about discharges from OMC with respect to the 5 categories of construction related waters and the existing NPDES permit modification to accommodate construction related changed conditions, EPA feels the specified technologies meet or exceed BAT for this site in conjunction with the BMP requirements and the compliance deadlines set by Section 304(1)(2), all discharges at OMC met the requirements of the CWA. It should also be emphasized that daily monitoring between the carbon filter units is required, with trigger levels for best management practices set to guard against the daily maximum occurrence. NRDC asserts that there is insufficient monitoring of discharges during remedy implementation. With daily carbon filter monitoring, it is difficult to suggest that more is needed. Carbon adsorption is a steady process for which saturation time can be calculated fairly accurately given loading rates and accurately measured at levels before the trigger level occurs.

NRDC has stated that EPA has not demonstrated how the proposed remedial action is consistent with 33 U.S.C. Section 1313(e). Pursuant to 33 U.S.C. Section 1313(e,) the Illinois Environmental Protection Agency has an approved Continuing Planning Process. In 1979, the Northeastern Illinois Planning Commission (NIPC) prepared a Water Quality Management Plan for the area including the site in accordance with Section 208 of the Clean Water Act(33 U.S.C. Section 1288). This Water Quality Mangement Plan called for a PCB removal plan to be developed and implemented by OMC in 1980. This Water Quality Management Plan was also certified by the State in 1980 and incorporated by reference under the Section 1313(e) of the Clean Water Act into the State of Illinois Water Quality Management Plan. The Illinois Water Quality Management Plan which incorporates the OMC PCB removal plan was certified by the State in 1983.

While the OMC PCB removal plan contemplated cleanup of the site by 1980, the parties were in the midst of litigation which prevented this dealine from being met. EPA, however has determined that the proposed remedial action is consistent with the Illinois Water Quality Management Plan (which contains the OMC PCB removal plan) and therefore the remedial action is consistent with Section 1313(e) of the Clean Water Act.

NRDC has also suggested that the Consent Decree should specify that OMC or the Trustee will be liable for payment of civil penalties in the event of violations of the effluent limitations set forth in the Consent Decree. EPA believes that it is unnecessary to include such a provision in the Consent Decree since CERCLA clearly imposes civil penalty liability for the failure to comply with any provisions of this Consent Decree. See Section 122 (l) and Section 109(a)(1)(E), (b)(5) and (c)(5).

**Comment**

11. EPA's proposed cleanup does not adequately protect air quality in the Waukegan, Illinois area.

NRDC expresses concern about the release of PCBs and furans resulting from the extraction process. They feel the Work Plan fails to provide detailed plans for preventing emissions and that the four monitoring stations are not likely to detect airborne releases.

**Response**

The Work Plan describes the concept of what will be done (in greater detail than Work Plans generally contain). The design deliverables are intended to provide all the detail needed to demonstrate compliance with the Work Plan.

The Treatment Health and Safety Plan will detail the number and location of air monitoring devices necessary to protect public and worker safety, as well as corrective action/contingency plans. These are standard requirements for health and safety plans. These plans will be reviewed and approved by the EPA Air Division and a number of other public health professionals. The four monitoring stations referred to in the Work Plan are only those around the treatment processor. The Treatment Health and Safety Plan will address the monitoring requirements for ambient air quality as described in §3.5 of Appendix III. That section states that air monitoring will take place at the site boundary. Furthermore, EPA always has the right to stop work whenever public health or the environment are, or potentially may be, threatened.

With respect to the commentor's statement that on-site monitoring is inadequate to detect off-site PCB migration, EPA had determined that initially, perimeter sampling is the appropriate first step in such detection monitoring.

**Comment**

12. The Consent Decree defers critical decisions, thereby eliminating the opportunity for the public to participate. NRDC submitted a list of these "decisions".

**Response**

The decisions referred to by NRDC are actually detailed implementation plans. The decisions which direct plan development are the Performance Standards embodied in the Work Plan and Consent Decree. These are the critical decisions for which public comment has been solicited. The ROD and Consent Decree are conceptual documents that depend on further engineering design for development of the details. Each step of the design and construction must be EPA approved. The design documents will be reviewed by EPA experts in their respective fields. Upon completion, each will be placed in the information repository. EPA will be keeping the public informed through fact sheets and news articles.

The remedial selection (ROD) process envisioned in SARA and the NCP is not intended to finalize or lock in all details of a remedial action prior to the completion of remedial design work. Rather, the RODs adopted by EPA have consistently allowed details of the remedial action to be resolved upon consideration of information developed and design decisions made as part of the remedial design process which commences after issuance of the ROD. The public comment procedures of §117 of CERCLA contemplate that EPA will receive public comments on the proposed plan for remedial action; this section does not contemplate that EPA will conduct an ongoing public comment process before acting on each of the design plans and other submissions that are required to proceed with implementation of the remedy.

**Comment**

13. The commentor suggests that the remedial action is limited by the amount of money available, that the amount of money available has in effect a cap of 19 million dollars.

**Response**

The commentor has incorrectly interpreted the provisions of the Consent Decree. Under the proposed Consent Decree, the obligation to perform the work is not limited by cost considerations. It is true that Exhibit A to Appendix II of the proposed decree establishes a payment schedule providing for OMC to pay $19 million to the Trust Fund which will directly manage the remedial work at the site. However, this payment schedule does not represent a "cap" on OMC's obligation to fund the trust. Rather, the proposed payment schedule represents an effort to assure that the initial funding of the Trust is realistic, minimizing the need for frequent recourse to provisions requiring supplement payments by OMC to the Trust.

Other provisions of the Consent Decree clearly establish that the funding levels provided in Appendix II, Attachment A do not represent a "cap" on OMC's cleanup responsibilities. For example, Part IV.C.2 of the Consent Decree provides that "in the event the financial reports of the Trustee show that the projected expenditures of the

Waukegan Harbor Site Trust exceed projected Trust funds, OMC shall pay additional amounts to the Trust sufficient to fund the difference within a time sufficient to assure the uninterrupted and timely completion of the work."

In addition to provisions for supplemental funding of the Trust, the proposed Decree makes it clear that OMC retains responsibility for completing all remedial work and achieving all Performance Standards established in the Consent Decree. See Consent Decree, Parts IV.B, IV.D and V.D.7.

**Comment**

14. The commentor states that the administrative record does not support the proposed remedy and that the 1984 Record of Decision (ROD) was superseded by the 1986 SARA amendments to CERCLA.

**Response**

The proposed remedial action as embodied by the proposed Consent Decree and its appendices represents the culmination of a ten year process. EPA has clearly documented in the administrative record the documents that support the proposed remedial action. Since U.S. EPA has essentially taken the 1984 ROD remedy and made distinct changes and improvements to that remedy, the 1984 ROD and the administrative record supporting that decision are a part of this record. The changes and improvements to the 1984 ROD are clearly documented in several documents in the administrative record, including the explanation of significant differences document. U.S. EPA therefore believes that the administrative record is complete.

The commentor suggests that the SARA amendments to CERCLA have in someway superseded the 1984 ROD. While the SARA amendments do not supersede the 84 ROD, the commentor is correct that certain amendments to the law did cause U.S. EPA to review the 1984 remedy. Most notably was SARA's preference for permanent reductions in the toxicity, mobility and volume of hazardous substances pursuant to Section 121(d). The significant differences between the two remedies reflect U.S. EPA's compliance with this SARA preference. The 1984 remedy called for the off site disposal of the dewatered PCBs. The 1989 remedy requires that 97% of the PCBs be removed from all treated sediments onsite. Thus while the SARA amendments do not supersede the 1984 ROD, EPA has met the amendments preference for the permanent reduction in the toxicity, mobility and volume of hazardous substances.

**Comment**

15. The commentor requests a clarification of the basis for the covenant not to sue in the proposed Consent Decree.

**Response**

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The U.S. EPA's basis for the proposed covenant not to sue include the criteria mandated by Section 122(f)(1) of SARA. In addition, U.S. EPA considered and evaluated the factors found in Section 122(f)(4) of SARA.

Specifically, the covenant not to sue is in the public interest for the following key factors:

(1) The remedy is effective and reliable; it compares favorably to the 1984 ROD by requiring the destruction of large mass of PCBs, by including the requirement for an inward hydraulic gradient, by minimizing handling that could create exposures.

(2) The Decree has performance standards for significant components of the remedy including the extraction process, permeability of containment cells and ground water contaminant levels triggering remedial action.

(3) The trust fund remains available in the event additional work is needed.

(4) The remedial action is carried out by a potentially responsible party.

Additionally, the covenant would also expedite response action for the following reasons:

(1) Fund dollars are not currently allocated for the Waukegan Harbor project to allocate funds for this project would take an estimated 6 to 12 months to obligate such funds and additional time to execute the administrative tasks such as contractor selection.

(2) To the extent that the proposed remedy involves use of Slip 3, the remedy requires acquisition of a property interest in Slip 3. The public acceptability of the proposed remedy depends on creation of a new Slip to replace existing marina facilities. OMC has reached voluntary agreement with the owner of Larsen Marine and is in the midst of negotiations with E J & E Railroad.

(3) If EPA and the State decided not to acquire interest in Slip 3 property, there would have to be a substantial redesign of remedy that would result in delaying the cleanup.

(4) The Covenant only affords protection as long as OMC is in compliance with proposed Consent Decree. See Section XVI.E of the proposed Consent Decree.

(5) The Covenant and Decree only become effective if EPA adopts the remedy at the conclusion of remedial action.

Thus, the covenant is consistent with the requirements of SARA.

**Comment**

16. The commentor essentially summarizes a number of points made throughout the comments. Specifically, the commentor states the following:

(1) The requirements of SARA have not been met,
(2) the administrative record does not support the remedy and,
(3) full opportunity for public participation has not been made.

Finally, the commentor proposes EPA withdraw the Consent Decree.

**Response**

U.S. EPA has answered each of the commentor's allegations in prior responses and directs the commentor to the following responses: responses V, VII and XIV with respect to item (1) response XIV with respect to item (2) and responses to the Lake Michigan Federation and response XII of the section with respect to item (3).

Finally, U.S. EPA does not believe that any of the comments received during the comment period have disclosed information requiring U.S. EPA to withdraw the proposed Consent Decree. U.S. EPA does believe that the proposed remedy does comply with the applicable laws, and is fully protective of human health and the environment and therefore for these reasons recommends entry of the decree.

f) Mr. Jeffrey C. Fort of Gardner, Carton & Douglas submitted comments on behalf of Outboard Marine Corporation. OMC provided 9 documents which are a part of the Administrative Record.

**Response**

U.S. EPA acknowledges receipt of these comments but finds it unnecessary to provide review or comment on these documents.

## IV. Remaining Concerns

No remaining concerns from the public comments received have been identified.